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### VOLUME XXXIV

DOMINION DENTAL JOURNAL RICHMOND AND SHEPPARD STREETS, TORONTO 1922

# LIST OF CONTRIBUTORS TO VOL. XXXIV

I	Page	1	Page
Armstrong, W. J	232	McDonald, P. E	126
Bartendale, Pearl D. N	181	McElhinney, Mark G	41
Bloodgood, J. C., M.D	26	McMulkin, J. E	214
Clermont, Charles C	13	Moore, F. P.	405
Colton, G. O	105	Orton, Forrest H	44
Cramp, Arthur J., M.D.	50	Potts, Herbert A	350
Dunlop, W. J., B.A	113	Rickert, U. G	343
Falconer, Sir Robert	287	Risdon, F. E 83	, 395
Foster, W. G	178	Simmons, E. G1	, 447
Feinburg, J.	142	Sharon, W. A	96
French, F. A	103	Smith, A. deH	475
Grant, Jean	393	Smith, Tom	412
Hart, W. G	171	Steele, O. W	231
Hartzell, Thomas B	17	Taylor, Bruce L	335
Howe, Percy R	329	Thibault, H	429
Jones, Basil	22	Thornton, A. W 87	, 207
Long, H. J	165	Trueman, W. H	354
Magee. James M 208	. 247	Webster, J. H	21

# CONTENTS OF VOL. XXXIV

P	age	P	age
ORIGINAL CONTRIBUTIONS		President's address Saskatchewan	uge
Annual report of the Dental Ser-		Dental Convention	357
vice, Department of Public Health, Toronto, 1921	109	Pressure Anesthesia	178 329
Arthur's Method of Preventing Tooth Decay	354	Prevent Dental Caries and Dis-	020
Best Methods of Overcoming the Dread of Dental Operations	41	cards of the teeth by prophylaxis	335
Cancer, a Menace to the Individual	115	Principles upon which restorations should be made	44
Candy Hurts Children	190 21	Proceedings of the joint conven- tion of Canadian and Ontario Dental Associations	071
Clinical History of Post-Operative Sequelae	123	Relations between gingival irrita- tions of the teeth and facial	371
Convocation Address Royal College of Dental Surgeons	207	Relation of Human Glands to	429
Day's Routine	181	Growth, Development and Long- evity	232
Dental Caries—Discussion of Papers Read Before the Institute of Dental Teachers, Montreal	378	Replantation of the lower second biscuspid	428
Dental Prophylaxis—Royal College of Dental Surgeons	149	Some uses of base-plate Gutta Percha	22
Dentistry in the Far North	393	Some further remarks on the Re- lationship of Endocrine Derange-	
Diet in Relation to Dentistry	460	ment to Interstitial Gingivitis	447
Discoloration of Gums and Mucous Membrane of the Mouth	126	What should the Deutel St.	103
Discussion of the Elements of Professional Success	13	What should the Dental Student be taught so that he may have a correct appreciation of his relation to affairs of life, ethical,	
Diseases and their relation to Focal Infections	350	tion to affairs of life, ethical, economical and financial?	287
Ductless Glands and their Relation to Vital Phenomenae	447	What the student should be taught that he may be prepared to pre- vent dental caries from a thera-	
Endocrine Derangement as a Factor in the Causation of Interstitial Gingivitis	1	peutic standpoint	343
Eskimo Dentist, The	475	serve diseased teeth	17
Factors which Govern a Favorable or Unfavorable Prognosis in Dental Operations	234	SELECTIONS	
Foundation and the Superstructure	87	Academy of Dentistry, Toronto, Constitution	432
Gold Crown as Menace	165	British Columbia Dental Society	
Health of Children, The	468		435
Local Anesthesia	214	Cancer of the Tongue	26
Local Anesthesia of the Oral Cavity	142	Crown and Bridge Work	24
Malocclusion as a factor in de-	412	Diagnosis as a factor in Dental Health	235
Maxillary Cysts	83	Defective hearing due to maloc- clusion	275
Musings on Cheerfulness and Health	105	Dentists' Generous Contribution	435
		Dental Study Circle of Montreal	434
Necessity of a Dental Library  Nostrum and the Public Health	135	Dental Nurse	182
New University Entrance Require-		Effect of Rickets	276
ments	113	Laws for Dentists	28
Ontario Dental Association	405	Teeth of Londoners	322
Oral Hygiene 247	171 298	Translucent cements	234
Oral Hygiene247, Osteomyletis of the Jaws	96	Treatment of non-union of frac-	395

## DOMINION DENTAL JOURNAL

IV	Page	I	Page
SOCIETIES		Hemorrhage after extraction of	110
Academy of Dentistry	. 365	teeth	442
Canadian Oral Prophylactic Association		Insurance for dental teachers  Incidence of dental caries	227 118
Canada Dental Research Founda-		Institute of dental teachers meeting in Montreal	72
Canadian and Ontario Dental Convention Programme		Our diet and our teeth	279 237
Dominion Dental Examinations 27	4, 362	Periodontal membrance infected by	201
Dominion Dental Council Minutes	3 265	apex or by way or dentine?	323
Dentists in Attendance at Canadian and Ontario Convention	398	Questionnaire, The  Records of public dental service	479
Hamilton Dental Society	. 194	and help for the future	160
International Association for Den- tal Research		Reciprocity in dental licenses School inspection in Moncton	439 325
Los Angeles Meeting	156	Words used in dentistry	367
Manitoba Dental Association	. 66	Woodbury, Frank	195
New Brunswick Dental Association	320		
Nova Scotia Dental Association	320	BOOK REVIEWS	
Regina Dental Society	. 67	American Pocket Medical Diction-	445
Regulations Governing Exhibits	154	Dental Index Bureau	244
Report of Committee on Denta Nomenclature	359	Dentist's Register 1922	243
Report of Dental Executive C.OP.A.		Pullen's Orthodontic Impressions and Casts	443
Saskatchewan Dental Association.	. 366	DENTAL COLLEGES	
Victoria Dental Society 1	94,273		9.41
Voluntary Dental Societies of Can-	. 32	Graduates receive degrees  McGill Dental Graduates	241
Waterloo County Dentists		Royal College of Dental Surgeons	283
Winnipeg Dental Society		CORRESPONDENCE	
		Dental Nurse	37
EDITORIAL	000	Index to Dental Periodical Litera-	01
Arthurizing Teeth		ture	163
Canadian Dental Association		Mental Factor in Medicine	
Code of Ethics, A		Gould, The late Dr. Geo. M	481
Dental Advertising		OBITUARY	No
Dentists as Members of Medical Societies		Dr. Harry R. Abbot	26
Dental Society Programmes	71	Dr. J. G. Adams 245,	285
Dental Clinic	281	Dr. Frank H. Barry, Ottawa	286
Dentist for Hudson Bay Co	241	Harry James Cox	40 /
Dentistry in Canada and England	325	Dr. Giles	104
Dental Nurse	33	Dr. W. A. Hicks, Calgary	206
Earliest Man and the Latest Disease	119	Dr. James J. Loftus	164
Editorial Notes36, 196, 239, 403, 73, 102, 122, 282, 446, 483.	369,	Dr. Roberts Tributes	164
Errors in Diagnosis based on		Dr. Wm. R. Wilkes	246
X-Ray Pictures French, Dr., goes to Ottawa		Frank Woodbury, D.D.S., L.D.S., L.L.D.	197

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#### ORIGINAL COMMUNICATIONS

# Endocrine Derangement as a Factor in the Causation of Interstitial Gingivitis

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So much has been said and written on the subject of Interstitial Gingivitis that it seems superfluous—if not presumptuous—on my part to try to add to it. I hope, however, to be able to present a viewpoint of the subject which may be considered worthy of some consideration.

Dental literature abounds in research work on the histopathology of the disease; but microscopical examinations of tissues taken from the cadaver do not demonstrate the changes which may have taken place in the blood or in the cell activities of the tissues during life. Perhaps there may still be something to be learned from the clinical side.

To avoid confusion, it may be as well to state at the outset that this contribution does not take into account those cases of pyorrhoea alveolaris which are of purely local origin, due to ill-fitting crown and bridge work, badly finished fillings and the like—which cases in reality are due to traumatism followed by infection, and limited in distribution.

Let us rather consider those cases which were known upder the old name of Rigg's disease—cases in which the disease is not of local origin, but more widely distributed in the mouth, and less amenable to treatment; cases which are undoubtedly in the first place due to some constitutional or systemic disturbance.

Speaking from an experience of twenty years in active dental practice, I should say that Interstitial Gingivitis is more prevalent today than it was twenty years ago; or it may be more correct to say that one sees more cases in this prairie province than in some other localities.

One cannot but be impressed by the large number of patients,—often quite young subjects, in whose mouths we find a hyperaemic "spongy" condition of the gingivae, of long standing, and without any discoverable evidence of local irritation.

This condition I believe to be the first visible clinical sign of the disorder that leads to pyorrhoea alveolaris; I say first "visible" sign designedly, because there may be a similar and simultaneous, if not antecedent, change in the alveolo-dental periosteum, which we cannot observe clinically at the commencement of the trouble.

Quite frequently one sees cases where bleeding does not take place from the gingivae, or free margin of the gums, but in which the very gentle insertion of a fine blunt-pointed probe, between the necks of the teeth and the free margin of the gums, gives rise to a copious haemorrhage. Such cases suggest that the initial local occurs in the alveolo-dental periosteum.

The question now arises, "What general systemic conditions give rise to this "spongy" hyperaemic condition of the gingivae?"

The researches of Dr. Eugene S. Talbot (1) have shown that they are numerous, such conditions as mercurial poisoning, Bright's disease, diabetes, mellitus, auto-intoxication due to faulty metabolism and the so called deficiency diseases, Scurvy, Beri-Beri, Pellagra and Rickets.

Now it will be noted that the above causes are associated with some form of chronic toxaemia, or are due to the absence of essential vitamines from the diet.

This is a very important point in relation to one other cause to be mentioned, namely Myxoedena.

In Myxoedema the gums are commonly "spongy" and hyperaemic. (Fred'k Taylor. Practice of Medicine.) (2) Now, an important function of the internal secretion of the Thyroid gland is to neutralize toxines and metabolites.

M. S. Pembrey defines "metabolites" as "the unorganized products of the activities of the cells": and in speaking of the Thyroid and Parathyroids, says: "There are two chief theories of the action of the Thyroid and Parathyroids. According to one, the glands neutralize poisonous metabolites produced in the body." (3)

One may therefore assume that in Myxoedema these poisonous products and toxines are not neutralized by the Thyroid and Parathyroids. To go a step further, there may be a relative deficiency in these glands—short of actual myxœdedema—a condition of hypothyroidism, in which condition there may be a relative deficiency in the neutralization of the poisonous metabolites and toxins. It is just this condition of hypothyroidism or endocrine derangement to which I wish to draw particular attention as being possibly of the very highest importance in the causation of Interstitial Gingivitis.

The point I wish to make is this:—That the very same diseases which are causes of Interstitial Gingivitis, are also causes of Endocrine derangement; and that Endocrine derangement may be a potent factor in the causation of Interstitial Gingivitis.

We have seen above stated that in myxoedema the gums are commonly "spongy" and hyperaemic.

I will now give notes of three cases which seem to show that Endocrine derangement is also productive of this hyperaemic condition of the gingivae; at any rate, the condition cleared up rapidly under Thyroid extract treatment. In the winter of 1920 I made what was, to me at any rate, an important discovery.

A case of Endocrine derangement was under treatment with Thyroid extract, and it was incidentally noted that the gums, which for about two years had been hypertrophied and haemorrhagic, quickly regained their normal tone and ceased to bleed, under Thyroid extract treatment alone.

Since then several similar cases have been observed, with like satisfactory results.

CASE 1. Male, Aged 43: first came to reside in Alberta in 1909. Had always lead an active, healthy life. No organic disease. General health had always been good.

In 1915 began to notice that his health was failing; felt less inclined for physical or mental exertion. This decline of mental and physical activity was progressive so that in 1917, in the fall, there were well marked symptoms of what was diagnosed as neurasthenia. The most marked symptoms were lassitude, disinclination to make any physical or mental exertion, and difficulty in concentrating the attention on any subject. Headaches were frequent. In addition there was marked general muscular wasting. Slight error of refraction in left eye, mouth clean and well kept; but it was first noticed about this

time (1917) that the gums were slightly hypertrophied and bled easily, with no local cause to account for the condition: no tartar on the teeth.

In the Summer of 1918 a change of climate was tried and the patient went to British Columbia. A few months' residence in that province produced a wonderful change in the patient's general health. He soon began to feel more energetic, mentally and physically; recovered strength and was able to do a good day's work without effort or fatigue. After four months' residence in British Columbia he expressed himself as feeling ten years younger. Then came the disastrous Influenza epidemic in the Fall of 1918, and, after a severe attack, the patient was left in a worse state than before and recovery was slow.

In January, 1919, the patient returned to Alberta and all the neurasthenic symptoms began to appear again; by the Fall of 1919 he was in about the same condition as when he first went to British ('olumbia. All the improvement had disappeared.

In November, 1919, haemorrhage from the gums was more marked, but there was no local condition to account for it; neither was it at that time considered to have anything to do with the general condition. There had never been at any time any obvious cause for neurasthenia. The case was now diagnosed as one of Endocrine derangement; observations were made on the temperature and the general pulse rate noted. There are no data available as to the blood pressure. It was found that the pulse rate varied from 90 to 104, which seemed to contraindicate Thyroid insufficiency. The temperature was slightly subnormal, rarely rising above 98°, even in the rectum. The rectal temperature was always higher than that by the mouth, and that by the mouth, than the axillary.

The neurasthenic symptoms and the slightly subnormal temperature pointed to hypothyroidism, but the rapidity of the pulse was against it; treatment by thyroid extract was delayed for some time on that account, until it was recognized that the adrenals were probably at fault too and accounted for the rapid pulse.

In November, 1919, the patient began to take Thyroid extract by the mouth, and, strange to say, the general pulse rate fell to a rate of 76 to 80. General improvement in health was rapid, and patient regained strength and activity, and a general sense of well-being.

Now, the condition of the gums had not up to that time been considered as connected with the other symptoms.

In the early part of January, 1920, it was noted that the gums no longer bled when brushed and appeared more healthy:—in other words, the scurvy-like condition of the gums, of two years' duration, cleared up in less than three months after the first dose of Thyroid extract, and without any local treatment whatever.

There has been no recurrence of the gum trouble since, and general health has remained good. The patient has kept up the Thyroid extract treatment for two years, with intervals of rest, and pays particular attention to diet, especially in the direction of fresh food as opposed to cooked. Both during and since treatment he has been continuously resident in Alberta. This point is noted as evidence that change of climate is not essential to cure, even though this scurvy-like condition of the gums is extremely prevalent in the prairie provinces.

Judging from the result of treatment, one may reasonably infer that the diagnosis of Endocrine derangement was a correct one: Thyroid extract alone seemed to supply the necessary stimulus to the particular organs involved.

In the light of recent knowledge, one may attribute the neurasthenic symptoms and scurvy-like condition of the gums to lack of vitamines inducing Endocrine derangement.

It is to be particularly noted that the patient's general condition rapidly improved after only a few months' residence in British ('olumbia, where fresh fruit and vegetables are obtainable in abundance; and there may be a good deal in the contention of Dr. A. Hess (10) and Dr. G. F. Still (London) (11), that much depends on the soil in which the vegetables are grown.

Probably the change of diet alone had not sufficient time to remedy in a few months a gum condition of two years duration. The relapse, and recurrence of neurasthenic symptoms following Influenza, may be accounted for by thyroid gland exhaustion and insufficiency, which is so common a condition after Influenza and accounts for the subsequent depression during convalescence. (Williams) (9).

CASE 2. Lady, aged 22 years, born and resident all her life in Alberta; engaged in clerical work.

On December 15th, 1920, patient came to see me complaining of bleeding gums. Oral examination showed a well

kept mouth, teeth clean and in good condition; there was very little caries and the teeth were firm in their sockets. There was a general hyperaemic condition of the gums, which bled easily at the slightest touch. This condition had been present for at least six months. No tartar could be discovered except a little around the necks of the lower incisors and cuspids lingually. No local cause could be found to account for the condition of the gums. No organic disease. Patient had always enjoyed good health until the last few months when she began to lose strength and energy. She felt generally "run down" and unable to make any exertion or to concentrate her attention, to the extent that she feared she would have to give up her work. Temperature normal: pulse 68.

Obviously some general systemic derangement was the cause of the trouble, and Endocrine derangement was suspected. She was referred to her medical attendant and thyroid extract was prescribed.

On January 22nd, 1921—that is to say, a month later—there was a marked improvement in the patient's general condition, and in the condition of the gums, which appeared firmer and more healthy, and bled to only a slight extent when brushed.

On April 23rd, 1921 - or four months after commencing the Thyroid extract treatment, patient had quite regained her strength and energy, and the gums appeared in as healthy a condition as one could wish to see. No local treatment had been employed. It may be interesting to note that this patient lived with her parents, both of whom were suffering from advanced pyorrhoea alveolaris; and presumably she had been living under conditions similar to theirs as regards diet (12).

CASE 3. E. J. Male, aged 30 years; resident in Alberta 21 years, farmer; came to see me April 27th, 1921, complaining of bleeding gums.

Oral examination showed a general hyperaemic condition of the gums, which bled at the least touch. There were "pockets" discharging pus around the upper central incisor, upper cuspid and upper first molar, all on the left side. Very little tartar except in the pockets above mentioned, and not much there. Very little dental caries and the teeth firm in their sockets. There was a full upper and lower complement of teeth except for the absence of the left upper first bicuspid. The second upper bicuspid on the left bore a gold crown. Thus the pus pockets were grouped around the gold capped tooth

and the space from which the bicuspid had been removed a year previously. Consequent malocclusion and irritation on the left side no doubt aggravated the condition; but they could not account for the scurvy-like condition of the gums on the right side.

General condition:—For the past two years the patient had been gradually losing strength and energy. Complained of weakness in the back, general lassitude, and easily became tired. Headaches frequent; no inclination for work or any exertion. His own expression was that he had "no ambition." He appeared anxious and worried about his condition. Normal temperature, but slow pulse, 56.

The opinion formed was that the general systemic condition anteceded the mouth condition; and that the gingivitis was the result, not the cause, of the constitutional disturbance. A provisional diagnosis of Endocrine derangement was made and the patient was referred to his medical attendant who prescribed a "mixed" gland preparation on April 28th.

On May 31, i.e., a month later, patient felt better in general health to some extent and the general pulse rate had risen to 72. The gums seemed to bleed less readily, but the improvement had not been as great as hoped for. The pus pockets were curetted and swabbed with tincture of Iodine, and thyroid extract, alone, prescribed.

On July 6th, patient reported his general condition much improved. The gums were firmer and appeared more healthy and there was no discharge of pus from two of the pockets mentioned above, but a slight purulent discharge from the pocket around the molar tooth, which was again curetted and swabbed with Tincture of Iodine. The gums no longer bled when brushed. Unfortunately I have been unable to follow up this case. However, when last seen, he had got rid of the scurvy-like condition of the gums, and the pus pockets had quickly responded to treatment. There was no doubt as to the value of thyroid extract in this case. (12).

Of course one cannot draw positive conclusions from such a small number of cases. But it was remarkable the way in which these cases responded to thyroid extract given by the mouth, especially as no other treatment was being employed at the same time in the first two cases noted. In the third case there were definite pus pockets, which quickly responded to local and general treatment.

It is not intended to infer that the thyroid glands alone

were at fault in these cases, but rather Endocrine derangement. Thus in Case 1 it will be noted that the general pulse rate was 90-104 before treatment, but afterwards fell to a rate of 76 to 80. This would suggest that the adrenals were at fault, too.

Now, what are the causes of Endocrine derangement? Among other causes are the very same toxaemias which cause Interstitial Gingivitis. If in addition we can bring any evidence to show that the deficiency diseases, due to lack of vitamines, are also casual factors in the production of endocrine derangement,—as the toxaemias undoubtedly are—then we can assume that practically all the causes of Interstitial Gingivitis are likewise causes of endocrine derangement, and we may rationally attempt to combat Interstitial Gingivitis by means of Opotherapy or treatment by administration of extracts from the Endocrine glands.

What evidence is there that a deficient or faulty diet is a cause of Endocrine derangement?

At the 88th annual meeting of The British Medical Association, Lieut.-Col. McCarrison of the Indian Medical Service, read a paper on "Dietetic Deficiency and Endocrine Activity" (4) in which he described the results of experiments on pigeons, guinea-pigs and monkeys, produced by feeding these animals on six classes of deficient dietaries. He attributed the effect of these dietaries on the Endocrine organs to the action in varying combinations of:—

- (1) Deficiency of vitamines.
- (2) Imperfect balance of the proximate principals of the food.
- (3) The chance occurrence of pathogenic agents in the body. "As the result of dietetic deficiencies all the Endocrine organs suffered varying degrees of atrophy and lowering in functional activity, except the adrenals and pituitary body which underwent enlargement.— The adrenal glands, the most susceptible of all the Endocrine organs to dietetic effects, were found to become enlarged as the result of all six classes of deficient dietaries and also in consequence of starvation.—The quality of food governed the amount of adrenalin content, as also did concurrent infections."

From these experiments we have direct evidence that the Endocrine organs are affected by dietetic deficiencies, the effects varying with different animals and different dietaries. But it is not merely deficiency in vitamines, carbo-hydrates and fats that we have to consider, but also deficiency in suitable protein.

Prof. F. Gowland Hopkins in the Huxley Lecture delivered in London, November 24th, 1920, speaking of Protein Supply, states: "We know that the complex molecule of protein consists of some twenty structural units, assembled in what we may call the molecular pattern of the protein. All these units belong to one chemical genus, since all are residues of amino-acids. An animal can be maintained indefinitely if, instead of intact protein, it be given the whole mixture of amino-acids which results from the complete digestion of a normal protein, such as the casein of milk. This fact makes it possible to test the nutritive importance of each individual amino-acid by observing the effect on the animal of removing it, and it alone, from its food. . . . . It should be understood that the function of any individual amino-acid need not be confined to its share in the reconstruction of tissue protein. It may be the indispensable raw material for more specific chemical processes. As a single instance of such a function it may be noted that the Iodine of the Thyroid gland is present in an Indol compound. One particular amino-acid - Trytophane—is itself an Indol derivative, and almost certainly is constantly required for maintenance of Thyroid function."

Here again we have authority for stating that dietetic deficiency, in this case the absence of a certain amino-acid from the diet, affects the function of one of the endocrine glands, namely the Thyroid.

Another item of interest in this connection is an annotation on "The Lipoid Gland" which appeared in the Lancet in part as follows: (6)

"It has been recognized for some time that there are two varieties of adipose tissue; the familiar subcutaneous form, and another in which fat occurs as small discrete droplets in cells grouped together in well defined masses."

"In a valuable contribution to the current number of the British Journal of Experimental Pathology Dr. W. Cramer carries the matter a step farther. When food is withheld from a rat or mouse the ordinary adipose tissue becomes greatly diminished in amount, but the glandular fat shows no obvious decrease. Still more striking are the results obtained by feeding animals on a diet free from all vitamines. In these circumstances, the animals become extremely emaciated, and the glandular fat loses its lipoid contents. But it still remains as a tissue. . . . It has, in fact, the characteristics which one associates with an organ of internal secretion. Dr. Cramer brings forward a certain amount of evidence to show that glandular fat is functionally related to the thyroid and adrenal glands, and that it contains a reserve supply of a vitamine which can be drawn upon when the substance is absent from the diet. He suggests that the tissue should be known as the Lipoid or Cholesterine Gland."

Once more, in the above annotation, we meet with the same idea, namely, the effect of food supply and vitamines on the Endocrine organs.

There is also a certain amount of indirect evidence which seems to point to a connection between vitamines and endocrine activity. Take, for instance, the case of Rickets, the aetiology of which is disputed. Mellanby (7) and others hold that it is due to lack of fat soluble vitamine A.; and Dr. Alfred Hess (8) (New York), regards cod-liver oil as almost a specific for Rickets. Others, however, regard thyroid deficiency as being the chief factor in the causation of Rickets. Among the latter is Dr. Leonard Williams (London) (9), who says:

"Now in regard to Rickets, I feel in a position positively to affirm that if all the symptoms of the disease are not due to Thyroid insufficiency, then certainly its most salient features are . . . . and every case of Rickets in which I have employed Thyroid Extract has shown such decided improvement as to leave no doubt in my mind that Thyroid Insufficiency is the main causative factor in the disease."

In the light of McCarrison's experiments above mentioned, both views as to the causation of Rickets may be correct, and the disease be due to Thyroid Insufficiency induced by lack of essential vitamines.

This is precisely our point of view as regards the aetiology of Interstitial (fingivitis also; and additional weight is given to this contention by the fact that Dr. Talbot's researches show that Interstitial Gingivitis is common in Rickets (10).

To sum up, the conclusions arrived at are:

(1) That the numerous constitutional causes of Interstitial Gingivitis, associated as they are with either toxaemia or deficiency, are also causes of Endocrine derangement.

(2) That Endocrine derangement is an important factor

in the causation of Interstitial Gingivitis.

(3) That we may rationally treat the constitutional causes of Interstitial Gingivitis by means of Opotherapy.

#### TREATMENT:-

The researches of Dr. Talbot and others have shown that there are a great number of constitutional causes of Intersitial Gingivitis, and it is just this multiplicity of causes that has made the problem of treatment so difficult hitherto; but if all these causes can be reduced to one common factor, then the problem will be much simplified. If it be true that we have that common factor in Endocrine derangement, we have one line of attack against Interstitial Gingivitis, namely Opotherapy.

The few cases so far observed have done remarkably well on Thyroid Extract alone; possibly even better results might have been obtained by the administration of a suitable pluri-gland preparation.

It may be objected that treatment of Interstitial Gingivitis by Opotherapy deals merely with an intermediate or secondary cause, and does not go to the root of the trouble, which in the vast majority of cases seems to be some form of dietetic error or deficiency. But experience has proved how difficult, or well nigh impossible, it is to get people to regulate their diet for a sufficient length of time, if at all. Failing this, Opotherapy seems to be the alternative. If, in addition, we can obtain some sort of regulation of diet, so much the better.

If the constitutional treatment of Interstitial Gingivitis were to be carried out along these lines, permanently as regards diet, and with intervals of rest as regards Opotherapy, I believe we should soon witness an improvement in the "pyorrhoea" situation. Even in advanced cases, the removal of the constitutional cause would give local treatment a chance to succeed.

Local treatment will, of course, be necessary in addition to constitutional treatment in cases where the disease has reached a certain stage ,or where there is a definite source of local irritation, which aggravates the condition and leads to a "vicious circle."

Local treatment alone, of whatever nature, can never effect a permanent cure, but merely a temporary improvement, in those cases in which the primary cause is a general systemic one.

At present, the weakness of the contention as regards Opotherapy in the constitutional treatment of Interstitial Gingivitis, lies in the small number of cases so far observed. In medicine it is a very unsafe thing to argue on the 'ex uno disce omnes' principle. At the same time, a single sign post may point the way to thousands.

At least one of the patients referred to has persisted in the treatment, outlined above, for two years. Before treatment the gums, even in a well kept mouth, had been "spongy" and hyperaemic for a period of about two years, and yet this condition disappeared within three months after administration of Thyroid Extract alone, and without any other treatment whatever; moreover, there has been no recurrence.

In conclusion, one can only hope that at least a plausible argument has been presented, and that other observers, with greater opportunities for research, may test this treatment and report their findings in the journals.

Amid much that is speculative, there is some evidence and, I hope, some proof, in favor of the contention that Endocrine derangement is an important factor in the causation of Interstitial Gingivitis.

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Lacombe, Alberta, Canada.

# A Discussion of the Elements of Professional Success

Charles C. Clermont, D.D.S., L.D.S.

Thought—habit, will become fixed on Faith or Fear, and the result to a professional man is good or bad accordingly. If your thought is fixed on Faith, in the greater meaning, you are invincible. If it is fixed on Fear, or its elder child, Worry, you stand helpless, weak, conquered and miserable. The man who wrote "If at first you don't succeed, try,try again," might have strengthened the suggestion by adding: "But don't try the same way."

You must overcome obstacles singly and not look upon them en masse, for you will be discouraged if you do. Take one thing at a time, dispose of it, tackle the next thing and so on. Success comes slowly, it creeps. Your hunger for success makes you wish that progress would come jumping along like a kangaroo.

The mountain climbers often gaze at the frowning range to be mastered, and at a glance it appears to be an impossible task, but it has been done before, and therefore can again be accomplished. They hit the trail, walked step by step, around bends, over rocks resting once in a while to refresh themselves and replenish their energy. As they look back from the resting place, the very ground over which they have passed looks as forbidding as the hills ahead of them, but the fact that they have gone so far gives them confidence they can go farther and they do.

The professional problems are like those of the hills. Keep on your way, rise slowly, surely and go forward, no matter how slowly you go, just so you are moving in the right direction. Let a song be on your lips and happiness in your heart and the journey will be easier.

The troubles you have had in the past are greater than any troubles you will have in the future. The things you expected to floor you in the past did not happen. You may be hemmed in now, and the walls around you may look impassable, but keep your head up and keep climbing. The followers of your profession are watching your progress, and if you can give them hand-clasps of cheer and words of courage you will help them and more certainly help yourself.

One great element of professional success is that you must consider others before yourself, you must do things for them, you must get yourself out of yourself, or you will be narrow, uncharitable, envious and miserable, and the longer these conditions exist, the harder it will be for you to be a successful professional man in whatever profession you may have chosen.

Efficiency also plays a great role and it is sometimes cited as the key to success. Unless a man is efficient and eminently qualified to serve the public skillfully, he is handicapped at the very foundation, and the thing for a young man to do, if he finds himself lacking in skill in any department of his work, is to so apply himself that the deficiency is overcome and he finds himself on a level with the best. Mediocrity will not win in this age of active progress—today there is little room in any profession for the "average man." People are becoming too discriminating to allow a man of meagre attainments to impose on them for any length of time, and the condition no longer exists where "mere glibness of tongue" can compensate for lack of ability.

To be able to determine between seeming progress and real advances is what helps to stamp you as possessed of sound judgment. In every walk of life and in every field of labor, the eager, ambitious man is keenly observing the slow, yet steady, onward, upward movement of their vocation, craft and profession. Now when to cling to an old time method and just when to let go of some unsatisfactory process, that is the big question. Get enthusiasm in your work and get in touch with the best in the practice. Nothing so spurs this progressive spirit as the attending of conventions, gatherings and reading of your professional journals, and besides they are a great aid in determining between seeming progress and real advances and unless you are able to do this you will find yourself lacking in efficiency.

"Be not the first by whom The new is tried— Nor yet the last to Lay the old aside,"

is a very safe rule to follow.

Another requisite in success relates to the personal habits of the practitioner. The chief article in the professional faith may be written in one word,—cleanliness: And there is no other single word so big with possibilities as this. The man who expects to be successful in his profession upon approaching a patient or client should be the very pink and essence of purity. His linen should be clean, his person irreproachable by frequent bathing, his face fresh shaven every morning—if he shaves at all—and his hands most scrupulously cared for.

There is never any precaution too great to be taken in avoiding offensiveness of whatever character connected with the

personality of the professional man of today. His breath should be the object of especial care, and he should avoid all food materials which will in any way leave a taint upon it. "To smoke during office hours is the great unpardonable sin,"—said Dr. Johnston, and no man who has any respect either for himself or for his clients or patients will commit such a breach.

This question of cleanliness should be carried beyond the person of the professional man, and be made to include his office, office equipments and instruments.

Another important consideration to success is the deportment of the practitioner towards his patients, or clients, or parishioners, if the professional gentleman happens to be a minister. A good motto to follow is "Be pleasant every morning until 10 o'clock. The rest of the day will take care of itself." Of course, this should not be taken literally and you should at all times be absolute master of vourself so far as demeanor is concerned, and no matter how many worries or untoward occurrences arise duing the day you should never give way to impatience or ill-humor. To be a perfectly poised gentleman is a wonderfully strong recommendation for any man, and particularly so for a dentist or physician. It has a compelling influence on his patients to make matters run smoothly, and develops in the office an air of quiet and restfulness which has a far reaching effect among cultivated people. In all his professional relations he should be the essence of kindness, and if possible of tolerance. It is at all times necessary to be firm in convictions, but this firmness should be so tempered with a calm courtesy that the contention for right may not seem arbitrary or offensive.

The fundamental subject of morality cannot be altogether left out as in my opinion it is of the greatest importance from a purely business point of view, that a professional man live an upright, moral life. Laxity in morals has a very wider-reaching effect upon the public than the average man is likely to imagine. no man cares to patronize a man in a professional way who is known to be morally bad. Even if it were possible to keep the knowledge of immorality from the public, there is irrevocably a concomitant disintegration of character which goes with an immoral life, and which sooner or later undermines a man's success.

Another strong element which goes to make a strong professional character is honesty of purpose in everything that is done. A firm conviction of what is just and equitable to both parties should form the basis of every-day practice; when a man once establishes the reputation for rigid honesty he is more than half

armed against dissension and misunderstanding. This matter of honesty relates as much to the details of the work performed, the pains taken with each operation, and the advice given to a patient as it does to questions of finance or to the purely business phase of practice. In a few words it may be said that the man practicing should be professionally honest as well as commercially so.

The virtue of punctuality and system must also be emphasized in considering the elements for success in professional life. The man who conducts his practice in a hap-hazard way will likely reap hap-hazard results, and such a character will usually be the first to wonder why he does not succeed. We should be punctual in every detail of our work and try to economize the time of others as much as possible. Of course, in a professional pursuit where the relief of pain is the paramount duty, emergencies will arise which sometimes delay the practitioner beyond the time set, and should be excused for delaying his patients, but these only happen occasionally and can be readily explained and understood by the patient.

Above all things a successful man in any profession must be a close student of human nature. No two people can be successfully managed by the same methods. A quick intuition of the temperament, the whims, the prejudices, the fancies, and the varying peculiarities of individuals is a wonderful help in the management of a practice and the man who has successfully cultivated this has accomplished a great deal towards the road to success.

## When to Extract and When to Conserve Diseased Teeth

Thomas B. Hartzell, D.D.S., Minneapolis, Minn.

(Read before the annual meeting of the New Jersey State Dental Association, Atlantic City, New Jersey, July 14 to 16, 1920.)

Mr. President, Ladies and Gentlemen, and Members of the New Jersey State Dental Association:

I know of no more subtle form of flattery than to be invited to come half-way across the continent to address a group of men who were born, bred and trained in a country which really originated dentistry, for I come from a country so young in culture, that the very ground occupied now by the college building of my alma mater was occupied by the Indian with his tepee when your country had enjoyed the advantages of great colleges for several generations.

May I pass at once to the subject upon which I am to speak, "When to Conserve and when to Extract Diseased Teeth," which is a subject in which every man practicing dentistry is vitally interested? The art of mechanical dentistry has been so developed and has reached such a high degree of excellence that it is possible to retain in the jaws of the majority of our patients almost all teeth in relative comfort and efficiency, and the unpleasant suggestion that we must alter our lines of practice and extract teeth from the jaws of our patients which are doing good service as masticating organs is decidedly objectionable to every honest dentist who has practiced conscientious conservation of human teeth.

The question at once arises, Is it necessary to extract the human tooth when the vitality of its pulp has been lost, and, if so, why must we accept this view? To answer that question of why many men now feel that all pulpless teeth must be removed from the jaws, it is necessary for me to go back a little and refer to some of the earlier work done in this country by Gilmer and Moody and Henrici and Hartzell on the bacteriology of pulpless teeth and the conclusions arrived at by the foregoing writers, which were, in brief, that devital root ends are to a very large degree the hosts of bacterial growth which produces pathological states in the tissues contiguous to the root ends, and more than that produce pathological conditions in other areas of the body to which bac-

teria may travel from the neighborhood of infected root ends. For instance, in the first one hundred and sixty-two pulpless teeth examined by Henrici and Hartzell, one hundred and fifty were found to be the hosts of bacterial growth. These teeth were taken largely from the mouths of hospital patients and the reason they were removed was to determine, if possible, whether or not these diseased root ends might be in any way responsible for the arthritis, myocarditis and other ailments, because of which the individuals were in the hospital. They were for the most part producing no conscious discomfort to these bedridden patients.

The weighing of this fact, together with the clinical results obtained by the removal of these teeth, tends to lead one to the conclusion that pulpless teeth should all be extracted, particularly when we take into consideration the fact that from many of the culture produced in this work animals were inoculated, which in turn developed lesions which resembled in many ways the lesions from which the patients were suffering and from which secondary lesions developed in animals. The authors in question were able to obtain cultures of the original type of germ from the inoculated animals.

If one were to take the work of Gilmer and Moody, forty cases, or the results of the work by Henrici and Hartzell above referred to, one might fairly conclude that as one hundred and fifty out of one hundred and sixty-two dental foci produced bacterial growth on examination when taken from the jaws, all pulpless teeth should be extracted. As a matter of fact, however, this would be a wrong conclusion for the following reasons:

In the first place, please remember that these earlier studies were made on patients who were already suffering secondary lesions of various types and their resistance to bacterial invasion was low. If we were to extract the same number of pulpless teeth from the jaws of healthy, vigorous individuals, our experience shows that we would find a large number of them bacteria-free and therefore not transplanting infection, so that while the first work was true, without the context of much additional work done upon pulpless teeth properly handled and properly sterilized in the process of treatment and in the mouths of healthy people to begin with, we have not the whole truth, and may arrive at a very different set of conclusions when we have it. Therefore I sincerely believe that while the earlier articles telling of the damaging results due to metastatic bacterial invasion from pulpless teeth were true, they were not comprehensive enough to tell all of the truth. They only produced a part of the truth and part truth may oftentimes without the entire truth be made to convey an untruth, and I suggest to my hearers that we cannot justly decide as to whether we must remove all pulpless teeth on the evidence of the type produced in the articles referred to because they dealt with sick teeth and sick people altogether. Therefore we must go more deeply into the question and examine many pulpless teeth in the jaws of healthy individuals in order that we may know when to justly destroy valuable masticating mechanisms.

In the meantime we have at hand modern diagnostic methods to determine whether or not patients presenting pulpless teeth are being in any way damaged by these teeth. I therefore recommend the following for a reasonable diagnostic routine with all patients for whom this decision must be made:

There is no reason in the world why dentists should not use the same precautions and the same type of educated judgment in the protection of their patients' best interests as does the physician in the care of his patients or the attorney in the care of his clients. Nothing could be more reasonable than this. Every dentist who assumes to preserve or wreck useful dental mechanisms should either carry out himself or have carried out by competent co-operative procedure by physicians, these complete examinations. When an individual presents pulpless teeth, in which the X-ray betrays no bony disease and in which the evidence of pathological change cannot be elicited by palpation of the soft tissues over the root ends or by percussing the teeth themselves with steel instruments, and the patient is otherwise well physically, we are justified in allowing pulpless teeth to remain. In order to justify the extraction of teeth of this character we should have positive evidence that bacterial invasion from them is of sufficient damage to justify their removal.

In order to demonstrate this fact a careful examination of the patient's blood becomes immensely helpful. If by exclusion all other sources of infection are eliminated and we find an increased leukocyte count associated with a secondary anemia, we must conclude that bacterial invasion is going on and that the patient is in danger sufficient to justify extraction.

Still further, the blood examination may reveal a diminished number of leukocytes. For example, a patient presenting a leukocyte count of 6500 or less and an increased proportion of lymphocytes over phagocytes associated with a secondary anemia, we are given a positive warning that the patient is in serious danger and the extraction should be performed only as rapidly as the patient can bear surgical interference. We are further warned that we should not extract more than a very limited number of teeth at a sitting with safety to the patient, because if the teeth in question or their bony environment are the site of much bacterial growth, the removal of the teeth will of necessity open many bloodvessels and convey an immediate shower of bacteria to the blood stream. In the presence of a diminished leukocyte count, the patient will not be able to combat the bacteria suddenly spread in the blood stream. Many patients succumb to an immediate and rapid dissolution under such conditions. However, if such extractions are few in number and the bacterial shower produced well within the patient's ability to destroy, and the extractions are made at intervals sufficiently far apart to permit the destruction of the shower of bacteria, the patient will evidence a steady increase in energy and an overcoming of secondary or metastatic infection which may have arisen from the infected tooth area.

The examination of the urine, while not of such great value to the diagnostician in concluding whether to do a surgical operation and just how much surgery the patient should be compelled to bear at one time, should not be neglected. The presence of casts, albumin, sugar, or red blood cells in the urine indicates grave conditions which must always have a direct bearing on the conservation or destruction of pulpless teeth, particularly if such pulpless teeth present radiographic evidence of deep pyorrhea pockets or granulomatous root ends. If patients present evidence of secondary infection in the general examination and, in addition to that, present a blood picture indicative of a well-fought battle between the bacterium and the leukocyte as evidenced by an increased feukocyte count, we know we should operate and could so operate with greater rapidity than we could if the blood count shows an ill-fought battle between the bacterium and the leukocyte and a decreased leukocyte count. vigorously recommend that the dental profession of the future follow better diagnostic methods, and when conditions brought out by such methods indicate that direct damage is

being wrought through the presence of pulpless teeth, they should be removed. If such evidence is not elicited, we should bear in mind the fact that for fifty years the skill of the dentist has been such that, where conscientious asepsis has been practised, pulpless teeth have been conserved for thousands of individuals who have died of old age, and the needless removal of good masticating mechanisms when not doing harm is as much to be deprecated as is their retention when doing harm.

## A Case of Hemorrhage

J. H. Webster, L.D.S., Montreal (Reported in 1869)

A number of years ago, a patient of mine called in to see me, bleeding from the gums, having been treated without avail for three days by his physician, who could not stop the hemorrhage. The blood oozed out slowly from around the neck of a perfectly sound tooth, which was neither decayed nor diseased. This was peculiar, and to me, a novel case. The gentleman was so weak that he could hardly stand. He came to me as a last resort, thinking as it was from the gums that it might be within my scope to stop the bleeding. I suggested as the only possible remedy, the extraction of the tooth, and afterwards plugging the socket; but I refused to do it unless his physician was present, as the condition he was then in did not seem to justify me in assuming any risk, without the presence of his medical attendant.

The next day he returned alone, not being able to get his physician. He had made every arrangement to die; the bleeding had continued all night. The physician advised him to submit to my proposal and he decided to do so. I concluded to take the risk rather than let him perish, and I must say that never in my practice did I feel so great a dread of con-

sequences as on that occasion.

I extracted the tooth—a molar—and the blood spurted out in jets ominously. I immediately plugged tannin and gold foil into the socket, the best things I had at hand; in ten minutes a clot was formed, and the bleeding had ceased. The blood evidently was arterial. I hardly know how to account for the spontaneous hemorrhage. I question if any other means than those I adopted would have saved that gentleman's life.

# Some Uses of Base-Plate Gutta Percha

Basil Jones, D.D.S.

(Report of Address and Clinic given before the Society of Dental Science, N. S. W.)

In base-plate gutta percha we have a material which, of late years, has been more or less neglected, and I feel that the younger members of our profession have not used it enough to learn of its advantages in a large dental practice.

One of the latest text books on operative dentistry, edited by Dr. Marcus L. Ward, says, "To the casual observer it might seem that there was little use to which gutta percha might be put. Such, however, is not the case. Instead, there are a great many places where gutta percha seems to satisfy more of the requirements than any other material."

Being an organic body, and knowing its tendencies to absorb a certain amount of moisture, great care must be used as to its position and quantity to get the best result. I will mention the following uses I have found for the material:—

- 1. Permanent fillings in cavities below the gum margin.
- 2. For fillings in temporary teeth.
- 3. A separating medium.
- 4. A compressor for applying cocaine to pulp.
- 5. For temporary setting up of dowel crowns.
- 6. For temporary setting of hellow metal gold crowns and bridges.
- 7. Permanent setting of dowel crowns in combination with cement.
- 8. For taking impression of roots where compression of gum is needed and a model required.

Of all the uses of base-plate gutta percha I find the greatest help in its application to the temporary and permanent setting of dowel crowns. Any detachable pin crown can be set in a very short space of time by filing the pin to give plenty of space to take up the gutta percha. The pin is then barbed with a sharp knife and fine strips of base-plate gutta percha run around it with the pin hot. The gutta percha coated pin, with crown, is then adapted to the moistened root canal, placed in correct line, and compressed so that the base-plate fills, perfectly, the intervening space between the root and porcelain crown. It is then withdrawn and the gutta percha trimmed to just cover the root, and, with thin

cement placed in the socket of the crown, it is returned to the pin and set into correct position. The same procedure is followed for the permanent setting of these crowns, except that the gutta percha around the barbed pin is reduced to allow a strong coating of cement between the wall of the canal and intervening gutta percha. The base of the porcelain crown is also ground to the root as perfectly as possible, so as to allow practically no gutta percha exposed to the fluids of the mouth.

The point I want to stress is that the easy removal of dowel crowns set with gutta percha and cement means so much these days when any of the incisor roots may become inflamed by over use, and the removal of the crown with surgical rest may mean the saving of the tooth. The present day opinion among many is that gutta percha is unclean, due to its absorption of fluids of the mouth, and is therefore to be more or less discarded. In defence I would like you to recall some of the pink base-plate and highheat gutta percha fillings placed, with discrimination, as permanent fillings in mouths over twenty years ago. The result has shown the material to be a wonderful tooth preserver. Again, look at some of the all-porcelain crowns removed, showing a fine layer of gutta percha over pin and base of crown. What do we see? The gums around these crowns have shown less irritation than many crowns set with heavy cast gold bases. In these days, when the gums are our first consideration, we must make sure as to the best materials to be placed under and about the gingival margins.

After making close observations for nearly twenty years I feel sure that the day has not come for us to discard that finely condensed, non-conducting and resilient organic material baseplate gutta percha.

#### **SELECTIONS**

# Crown and Bridge Work from a New Point of View

Forrest H. Orton, D.D.S.

As I now look back upon my work, I can readily see that my greatest fault in teaching was in the failure to select the right point of view. I followed precedent. I tried to develop in my students the habit of attention to minute details. In carrying out the technique of the work they were taught to make a bridge that would fill a space. The natural result of this training was that the student saw in every mouth mutilated by the loss of one or more teeth an opportunity to make a bridge. But this bridge was too often regarded as an end in itself. Instead of seeing the mouth as a whole; instead of seeing the dental arch in relation to the dental functions; instead of seeing the real problem presented by the mutilated arch and its many secondary modifications, the student saw only an empty space which a bridge would close. In other words, he saw only an infinitesimal fraction of the situation, and he could not recognize its most important and essential features. The bearing that the insertion of his bridge might have upon these essential features was therefore to him an unknown and unsuspected quantity.

Strikingly similar was the situation in the orthodontic art at the time when the two arches and their relation to the temporomaxillary articulation was not, as yet, clearly seen or understood as a functioning whole. In this stage of our insight it was not possible to value the individual units in proportion to their contribution to the harmonious action of the whole mechanism. But the subsequent recognition of the true situation, namely, the whole functioning mechanism, has made possible a classification in the field of orthodontia. It has been the most important single factor in placing this art on a scientific basis. This point of view once accepted, the importance of a thorough understanding of the conditions before attempting their correction, became a logical and natural sequence, and it became generally recognized that the ability to make a correct diagnosis was the key to success in practice.

It is undoubtedly true that the art of crown and bridge work has problems of its own, whose solutions necessarily require different methods from those of orthodontia. Nevertheless, the ultimate aim must be regarded as the same in both arts, when these arts

are regarded from the standpoint of prophylactic measures. Both arts seek the prevention and correction of malocclusion. There is no factor which has a greater influence in maintaining the health, not only of the teeth, but also of the surrounding tissues, than the presence of normal occlusion. The orthodontist has never allowed himself to lose sight of this fact. While dealing with other important problems, such as alignment, bone growth, facial contour and so forth, he has never allowed himself to forget that his chief aim is to secure normal occlusion. Not the least of the many advantages which the steady recognition of this ideal has afforded is the successful standardization of method within the field. As new methods are from time to time proposed and modifications of old methods suggested, they can be and are brought to the tribunal and test of this ideal, and accepted or disregarded according as they are judged to contribute, more or less effectively, to its realization. Mechanical ingenuity has not suffered by the application of this rule; on the contrary, has been guided into effective channels by the presence and recognition of a fundamental principle. The device has been recognized for what it really is, namely, the means to an end.

The failure to impress this point of view forcibly upon my students was. I believe, the most serious and fundamental fault of my early teaching. The problem here visualized is distinctly not one of appliances. It is a problem of proper conception, of a proper point of view for judging both appliances and methods, and workmanship. It is the problem of holding firmly in mind the ultimate aim and purpose of the work to be done, and of appreciating this aim in as concrete and intelligent a manner as is possible with the knowledge at our command. When we come to grasp this aim more and more concretely, we shall soon realize that we need some accurate method for studying the changes that take place in the arch following the loss of one or more teeth. We need, in other words, to know the difficulties we have to overcome, the threatened changes to be prevented, the abnormal condition to be, if possible, corrected, before we can decide upon what appliances to use. In the voluminous literature devoted to crown and bridge work, the study of the unfavourable conditions present and threatened when bridge work is indicated has been almost entirely neglected. This subject has led to the setting up of classifications, both in operative dentistry and in orthodontia. But I am free to say that in no field of restorative dentistry is there presented so great a variety of unfavourable conditions as in the class of cases involving mutilated arch, where we usually attempt restoration with some form of bridge work. And yet our diagnosis rarely takes these unfavourable conditions into account in any thoroughgoing manner. We usually confine ourselves to figuring out how we may best apply our favorite form of bridge. We have, indeed, adopted the practice of making study models, but they fail to have the significance for us that they ought to have, because we lack the comprehensive classification which guides the orthodontist in his interpretation of similar models. We have adopted a method from the orthodontist, but we have not been able to extract from it its full connotative value. We still use it blindly rather than seeingly. —"Journal of the National Dental Association."

## Cancer of the Tongue a Preventable Disease

Joseph Colt Bloodgood, M.D., Baltimore, Md.

We all know that the chimney-sweep cancer of the scrotum has disappeared since the human being no longer accompanies the sweep down and up the chimney. This cancer of the skin of the

scrotum was due to long continued irritation by dirt.

In a recent reinvestigation of 260 cases of cancer of the tongue the evidence seems convincing that this cancer is due to long and continuous chronic irritation by tobacco, by repeated burns from smoking, by continuous irritation or direct wounds of dirty, rough teeth or improperly fitted dentures. In carefully taken histories there is hardly a record of a cancer of the tongue in an individual who has not been warned by definite local lesions which were not cancer, and which have been present months and usually years before the development of the disease.

There is every evidence to conclude that if this information is widely and correctly disseminated, and the public and the medical and dental professions realize that cancer of the tongue is a preventable disease, death from cancer should largely disappear.

My experience with the operative treatment of cancer of the tongue in its early stage shows but 62 per cent. of five-year cures and but 12 per cent. of five-year cures after the most extensive radical removal of advanced cancer. During a period of thirty-two years (1889 to 1921) there have been 14 per cent. (36 cases) of early cancer of the tongue with 62 per cent. five-year cures; 26 per cent. (75 cases) of advanced or late cancer of the tongue with 12 per cent. five-year cures; and 18 per cent. of inoperable cancers of the tongue with no cures.

This study, which has been carried on continuously since 1910, leads me to the conclusion that more lives can be saved by the edu-

cation of the public and the medical and dental professions on the causes and prevention of cancer of the tongue than by any improvement in surgical technique, or any combination of treatment with the knife, cautery, radium or X-rays for cancer of the tongue.

In my own sphere of educational influence the propaganda of teaching has increased the number of benign precancerous lesions from 3 per cent, in the first decade (up to 1900) to 48 per cent, in the third decade (1910-1920) and so far in the beginning of the fourth decade (1920-1921) the percentage of benign lesions is 55. There is every reason to believe that these 105 men who have come under observation entirely as the result of the educational propaganda have been largely protected from cancer. The cause of their local lesion has been removed and they have been informed on the details of oral hygiene for their future protection.

During the same period the percentage of early cancer has increased from 3 to 23 per cent., advanced cancer has decreased from 48 to 11 per cent., and the hopeless cancer from 44 to 11 per cent.

Cancer of the tongue is a disease of men who smoke in excess and carelessly, or who chew tobacco constantly and, in addition, neglect the teeth.

The most common warning is *leukoplakia*, single, multiple patches, or diffuse white patches in the mouth. The individual is always aware of them, usually for years before cancer develops.

The treatment is to remove the cause. The use of tobacco in all forms should cease at once, and the teeth should be put and kept in perfect order. It may require three or four years for the leukoplakia to disappear.

The second most common warning is a local area of irritation adjoining ragged, dirty teeth. Tobacco should be discontinued,

and the teeth put and kept in perfect order.

Syphilis, as an etiological factor, has been exaggerated. If there is a history of syphilis and a positive Wassermann, specific treatment should be promptly administered, but subsequent development of cancer will not be prevented by this treatment alone. The causes—tobacco and dirty, rough teeth—must be eliminated at once,

Local treatment of leukoplakia or of the area of irritation by radium, X-ray or any irritating caustic, is contra-indicated. The cause must be removed first; then if the local lesion, except leukoplakia, does not rapidly disappear, it should be excised with a good margin of healthy tissue with the cautery. Do not excise a piece for diagnosis. Remove the area with such a good margin of healthy tissue that if the microscope reveals early carcinoma, there will be no indication for further local operation.

#### Laws for Dentists

In the September Issue of the Cosmos appears on page 896 an article under the heading "Law for the Dentist."

The Right of Unlicensed Persons to Own and Operate a Dental Office.

It would appear from the State vs. Brown in the Washington Case, that the state had no power to prohibit other than dentists from conducting dental offices. On the other hand it would seem from the judgment here submitted that such persons can be, not only convicted of practising without a license, but any licentiate who is so employed is open to discipline by the legislative Act. Under this judgment there has not been a dental office so conducted in Ontario since 1908. The arguments of the attorney were to the effect that the judgment of the licentiate in his professional practice was being influenced by the employer and thus the Dental Act was a failure to protect the public. The judgment was rendered 1908.

#### II. M. Little vs Royal College of Dental Surgeons

About four years ago and since that time several dental offices have been opened in Ontario owned by persons who are not dentists. They sought to evade the law by hiring operators who hold legal qualifications to practise. The Board of Directors, knowing that the owners of these establishments were influencing their employee's judgment in methods of practice to the detriment of the public, sought means to prevent a continuation or decrease of this objectionable practice. Not believing it possible to find the owner guilty of practising without a license (which, by the way, was made clear in the judgment below), they sought to have the operators in such places but up their own names and cease lending their name to the unqualified. To accomplish this end, the Board passed bylaws setting forth what are breaches of professional conduct and appointing a Discipline Committee, before whom offenders might be asked to appear.

Under the provisions of these by-laws the Board gave notice to several of the licentiates who were offending against the by-laws to appear before them. Before the time set for the meeting the Board was served with an injunction restraining them from taking action under the by-laws. After much discussion and a good deal of delay, both parties agreed to a stated case, in which Dr. Little, one of the employees of

Mr. Henry of the Toronto Painless Dental Parlors, admitted that he was employed by Mr. Henry, who had not a license. Dr. Little questioned the authority of the Board to pass bylaws regulating the practice of dentistry or to discipline its members. Counsel for Dr. Little was endeavoring to have the injunction made permanent. Mr. Hellmuth and Mr. Rowell appeared for the College and Mr. E. F. B. Johnston and Mr. McKay for Dr. Little. Below is the judgment of Mr. Justice Anglin:

Justice Anglin in High Court of Justice, Toronto, Dec. 22/08.

Judgment.

His Lordship:-I do not find it necessary to reserve judgment in this case. I think it at least doubtful whether it is open to the Court to enquire in the abstract what should be or should not be deemed professional misconduct. I incline to the view that it is not proper to make that enquiry, at all events unless there is before the Court some concrete case in which the Board or body to which the statute has assigned the duty of enquiring into cases of professional misconduct has determined that there has been a breach of professional duty, that there has been professional misconduct. and the person affected by that determination applies to the Court to exercise its jurisdiction by way of review of such decision. When such a particular case, such a concrete case arises, there can be little doubt of the jurisdiction of this Court to review the decision of the particular tribunal so far, at all events, as to enquire whether its powers have been exercised in a manner consonant with the principles of natural justice, whether there has been fraud in the proceedings below, whether there has been an omission on the part of the Court-using that word to describe the body acting in a judicial capacity—whether there has been upon its part a failure to observe those rules which may be spoken of as fundamental in the administration of justice, whether the jurisdiction of this Court goes beyond that may be again open to question. It is not necessary to determine any such question here; but if it were open in the present instance, there being no finding against the plaintiff, merely a charge laid under a certain by-law and the question being whether that by-law is or is not a valid exercise of the power conferred by Section 17 of the statute, if in such circumstances it should be open here to enquire into the validity of the by-law as an exercise of the powers conferred by Section 17 (and I now

refer to by-law No. 43), I should find upon the evidence before me, which consists of admissions merely, that the plaintiff's conduct was such as the Board under Section 17, might prescribe as conduct destructive of or detrimental to discipline in the profession. The action of Henry with whom the plaintiff had associated himself, in my opinion has been in direct breach of Section No. 26 of the statute. That section forbids any person not a member of the Royal College of Dental surgeons to practise the profession of dentistry or to perform any dental operation upon or prescribe any dental treatment for any patient for hire, gain, or hope of reward, whether by way of fees, salary, rent, percentage of receipts or in any other form whatever, or to pretend to hold or take or use any name, title, addition or description implying that he holds a certificate or license to practise dentistry, or that he is a member of the said Royal College of Dental Surgeons. Henry's arrangements were that he became tenant or owner, it matters not which, of the premises where a dental business was intended to be carried on, that he provided all the requisite apparatus, that he hired a competent certified or licensed dental surgeon to perform the actual dental work done in the establishment, but that the profit from such work, after payment of expenses, including the salary of the operator, reverted to and was the property exclusively of Henry. In these circumstances I think the contracts for whatever dental work was done in this establishment were contracts not with this plaintiff, but with Henry. I think Henry through Little, did practise the profession of dentistry; that he did, through Little, prescribe dental treatment, and that he did this for hire, gain or hope of reward. If he did not either practise the profession of dentistry or prescribe dental treatment he certainly did pretend to hold or did take or use a name or description which implied that he held a certificate or license to practise dentistry. He it was who used the name "Toronto Painless Dental Parlors;" he it was who conducted the business which was carried on under the name of the "Toronto Painless Dental Parlors;" it was his business, not Little's; the contracts for dental work would necessarily be made with him; he it was who held himself - not Little-out as a person entitled to use a description which implied that he held a certificate or license to practise dentistry. Henry I think, offended against the letter and the spirit of Section 26 of the Revised Statutes, Chapter 178. That being so, what

is Little's position with regard to Henry? Little is the instrument which Henry used, and Little allows himself voluntarily to be used for Henry's purposes in contravention of Section 26 of the Act. I think the act of the plaintiff was an aiding or abetting of the contravention of Section 26 by Henry, and, that being so, I think it was an act of professional misconduct which the defendants might well take steps to prevent as a breach of dicipline, and contrary to the best interests of the good government and regulation of the profession of dentistry, which was entrusted to their care under Section 17 of the statute. More than that, in my opinion the act of Little being an act of aiding or abetting Henry in breach of Section 26 of the Act was calculated to hinder and impede the carrying out of the statute, and one of the things for which the Board is empowered to make rules, regulations and by-laws is to aid in the carrying out of this Act. I therefore think that upon both these grounds it was well within the power of the Board to pass a by-law such as by-law No. 43 for the purpose of discipline, government, guidance and regulation of the profession, and to assist in carrying out the provisions of Section 26 of the statute.

Every now and then in dental and medical meetings and in the public press the statement is made that dentistry is to be made a part of medicine. As if it could be done by resolution. It is on a par with passing a resolution that a hen is a fowl. It is or it isn't and the fact cannot be changed by resolutions. The making of dentistry a part of medicine by legal enactment is another thing and doubtless would meet with strong opposition by many in both professions.

Dr. F. A. French presented a paper on prosthetic dentistry to the Calgary Dental Society.

# Voluntary Dental Societies of Canada

Victoria Dental Society

Wm. Russell, Pres., Permanent Loan Bldg.; R. E. McKeon, Vice-Pres.; B. C. Richards, Treas.; C. A. Harding, Sec.

Vancouver Dental Society

J. Rickert, Pres.; Oliver Leslie, Vice-Pres.; W. K. Sproule, Sec.-Treas.

**Edmonton Dental Society** 

O. F. Strong, Pres.: G. E. Budd, Vice-Pres.; L. McIntyre, Sec.-Treas.

Lethbridge Dental Society

N. Y. Allen, Pres.; W. P. Craig, Sec.-Treas.

Medicine Hat Dental Society

Dr. Large, Pres.; Dr. McDonald, Sec.-Treas.

Saskatoon Dental Society

Geo. W. Harris, Pres.; R. L. Toren, Vice-Pres.; D. J. Ferguson, Sec.-Treas.

Regina Dental Society

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H. L. Freeland, Pres.; T. Skinner, Sec.-Treas.

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B. A. Dickson, Pres.; J. Silknitter, Vice-Pres.; A. E. Chegwin, Sec.-Treas.

Saskatchewan Dental Society

A. P. Satter, Pres.; C. W. Parker, Vice-Pres.; E. C. Campbell, Sec.-Treas.

Swift Current Dental Society

G. L. Cameron, Pres.; R. A. Ross, Sec.-Treas.

West Central, Sask., Dental Association

L. Strange, Pres., Broadacres; R. H. Laying, Sec.-Treas.

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Vol. XXXIV

TORONTO, JANUARY, 1922

No. 1

### The Dental Nurse

In this issue appears a communication from one of the first graduates in dental nursing of the Royal College of Dental Surgeons of Ontario. Our correspondent's aim is to reply to some of the foolish criticisims of some members of the profession. She no doubt was stimulated to take up the subject by so many letters appearing in the dental magazines to the south of us on the hygienist. No matter what the criticisms or what the minor shortcomings may be of the trained dental nurse or dental hygienist she is here to stay and serve the public just as the homeopath or the ostopath or the general nurse. Dentists will have to accept the situation as it is and as it develops because these women are giving a needed service to the public. It is the business of dentistry to take charge of and direct all factors associated with dentistry.

This brings us to the broader problem which involves the share dentistry should take in public health. It is unnecessary at this time to argue the point of the value of dental services to the public. This is granted. How much service

should be given publicly and how much privately is not at all settled in dentistry no more than in medicine. But a service which is of so much value to the nation at large as dentistry is, should be supplied as cheaply as possible to all the people, Because of this economic factor highly and expensively trained dentists should not spend their time in giving public or private dental service which could be given by a less expensively trained person. The apparent natural demands of business have come into action in dentistry as in other walks of life. The inexperienced and poorly trained dentist does all his own work from char-woman to dental diagnostitian, but the well educated man may employ a dental mechanic, a secretary or business manager, a dental nurse, a dental hygienist and a char woman as well. By all these assistants each doing the part he or she is best fitted for the final result is in the best interests of the public. This applies as well in public as in private practise.

Up to within the past very few years dentists who wished trained assistance such as above indicated did the training themselves. Boys were trained as dental mechanics and girls as dental assistants. The practise of the hygienist was unlawful.

This is all changed. The dental mechanic comes from some public laboratory or a dental mechanics school, the dental hygienist from a dental hygienists training school, the dental nurse, from a training school for dental nurses, the secretary or office manager from a business college. are mostly specialists in their several departments and when a dentist criticises the mechanic because he does not know dental anatomy or the direction and force of the stress of occlusion he is expecting too much, likewise the hygienist is criticised because she knows little or nothing about pathology and the nurse because she is not a competent stenographer or dental mechanic. If all these persons were as competent in all these things when they graduate as they become later in some special branch then the dentist himself would loose his function. It is not expected in any of these schools no more than it is in a dental school to produce a finished product. It is expected however that these persons who are trained as dental hygienists, mechanics or nurses that they should have a general idea of their departments lacking only in experience and judgment. It would be impossible to train especially a dental nurse into all the peculiarities of every private dental office. The conduct of a dental office is not at all standardized nor never will be hence no nurse can ever be taught in college just in what particular spot to put the window shade in every office she might go to

or at what particular time to collect an account.

The dental nurse as she is trained in Canada is not capable on graduation day of entering a busy office where there are many others engaged and taking charge of any one department as a specialist but with a little help she will not only work rapidly into any one department but will have a good general idea of all other departments. She is especially trained to enter an office where all round service is required and where practise building is important and as the office becomes busier she can specialize employing others to assist. There is a notion among many dentists that if they employ a dental nurse they must also employ a housekeeper, this is not necessary at the beginning, but they will find that later on she will have little time for more than a general oversight of the office keeping. Unfortunately dentists have not been trained to use dental nurses, they cannot get used to the idea that a nurse girl could properly meet their patients or speak with them over the telephone. It is especially repugnant to some dentists to permit anyone to know the amount of the fee charged or the size of dental supply bills or the amount of money deposited in the bank daily or monthly. And yet the income tax officer demands this and more. The limit is reached when a nurse thinks she can mix cement or amalgam or choose the correct instruments for a given operation. Just why a dentist's time which is worth ten dollars an hour should be used up in going to the door and telephone, mixing amalgam, casting inlays, polishing dentures, sterilizing instruments, and dusting the furniture must be inconceivable to a business man. The peculiar thing about nursing service is that a dentist feels that if he has time to do these things himself he is better at that than anything else. It never occurs to him that such time might most profitably be spent in reading dental literature or practising some unfamilar operation. It is his ability to make a dental diagnosis or treatment which the patient is willing to pay for; not his skill in dusting a radiator.

The hygienist has had eight months training in oral prophylaxis and cannot be expected to know much else about dentistry. The dental nurse has had the same time on many subjects, dental mechanics, bookkeeping, stenography, typing, banking, dental supplies, equipment, oral hygiene, public dental service, sterilization, housekeeping, chair assisting.

# **Editorial Notes**

The Anti-Tuberculous Commission of Alberta appointed a dentist who is not a member of the Calgary Dental Society and by a report of the "Regina Leader" is classed as among advertisers. There can be no legal wrong in advertising so long as the truth is told in the advertisements. If the advertisements told the simple plain truth, no dentist or dental organization would ever object. The dentist who advertises that he will do painless dentistry is most likely telling an untruth because while it is quite possible to do what he says it would be entirely unwise. It often causes pain to shave but no sensible person would advise administering an anaesthetic for such an operation. It is this half truth that deceives and is wrong.

Dentistry is a branch of medicine, so says a bulletin of the Virginia Dental Association. Being a branch or a part, it cannot rightfully claim an independent existence but in all the laws of this continent it is so described. Dentistry in Europe is a branch of medicine but not so in America. In the Bulletin referred to over a dozen eminent medical authorities express the importance of dentistry and give it rank with pediatrics, obstetrics, etc. but none of these has independence of organization or action. This is all very nice but until dentists have the same legal and professional standing in medicine that is enjoyed by the obstetritian there can be no consideration of being a specialist of medicine.

It would appear from the general trend of Dental education that there is a great advantage to an association of Dentistry with Medicine. One of the chief objections to accepting graduates of the Royal College of Dental Surgeons in Great Britain was that such graduates did not receive their education in Anatomy and Physiology in a medical school. In a recent report of the Virginian State Dental Association to the Board of the University appears this paragraph. "No element in Dental education claims more importance than association with a medical school. There are forty-seven dental schools in the United States, nineteen of which are Class A schools. Eighteen of the nineteen Class A schools are associated with medical schools. Those not so connected are B or C schools."

### THE JOINT CONVENTION

Arrangements for the Joint Convention to be held May 15, 16, 17, 18, 19 are proceeding apace. Even at this early date accommodation has been secured, exhibitors' space is being rapidly taken up, the Entertainment Committee is busy with plans and the Program Committee have secured talent from one side of the continent to the other.

The Convention will be fortunate in having the excellent accommodation available in the King Edward Hotel. Exhibit space, hall for general sessions and clinic rooms are admirably adapted for our purpose. Accommodation for delegates, of course, is reserved in the hotel for those desiring it.

On the program will appear the names of clinicians widely known in their particular specialties. These are now nearly all secured. Progressive clinics are being sent by various dental organizations and colleges. It is a thoroughly practical program and will appeal to the busy dentist who has not the opportunity of attending the numerous postgraduate courses constantly being given.

Your co-operation is solicited to make this Convention YOUR Convention, both by suggestions and by your presence

next May.

Dr. E. A. Grant, 229 College St., Toronto, is Secretary of the Joint Committee.

# Correspondence

### THE DENTAL NURSE

Editor of Dominion Dental Journal;-

I have been amazed and shocked in following up the discussions in the various monthly Dental Journals as to the trained, versus the untrained dental assistant question, at the extremely narrow-minded view that some of the country's leading Dentists are taking on this matter. I see that, in the opinion of many, a girl, trained by a single Dentist in his own office, is of more use to him than a Trained Assistant.

On the other hand, I have been encouraged and delighted by other equally noted Dentists' opinions, and their enthusi-

astic acceptance of the Dental Nurse.

I myself am one of the privileged first graduate Dental Nurses from the R.C.D.S., Toronto. This means that I have had but two years' experience as a trained Dental Assistant, but, in my opinion—formed from much personal observation—these two years give me—us—ten years' superiority over

the untrained Assistant, in intelligent understanding and ability in our particular line of work, which is as an auxiliary,

only.

May I presume to speak of my own work, as being fairly representative of the work the Graduate Dental Nurses are doing. To begin with, I myself am most fortunately situated to carry out the line of work that a Dental Nurse is trained to do and which she specializes in, there being a Mechanical Dentist and a Secretary also on the staff. Hence, I am possibly freer to concentrate on my duties than some of my sister graduates who are doing the work of all three.

Besides the "thousand and one" duties to attend to at the chairside, where I remain constantly, there is another branch of entirely different and interesting work in which I engage, a work which is possibly my most important. This is prophylactic instruction to our patients. Unfortunately, as yet, we nurses in Canada are confined to the instruction end of prophylaxis only, not the actual operation. This however, we hope to have the privilege of performing in the very near future.

This work consists of taking the patient a child of four, perhaps, or a man of sixty, if his mouth glaringly shows the need of instruction in mouth-hygiene into a room reserved for this purpose. Here, with the aid of a typodent, three Hutax tooth-brushes—lingual, medium and small—and an exceptionally well-written little book on this subject, for both old and young, instructions are given on the correct method of teeth-cleaning. This performs the double purpose of impressing the necessity of a clean mouth on the child, as a health means, and also eliminates to a very great degree the dread of dental service.

We think that no step in our practice has brought more satisfactory results than this innovation. The children frantically compete with their companions to see whose teeth can be kept most free from stain, etc.; the grown-ups enthusiastically express their appreciation and thanks for being told "just how" for the first time.

When each patient thusly served has been called in at regular stated intervals the results shown are nothing short of marvellous—surely an invaluable asset to a modern dental practice of which "Prophylaxis" is the slogan to-day.

Now, could this result be obtained by the average busy Dentist? No indeed. His time is already too engaged in

constructive and replacement operations, cases which naturally command higher remuneration. But a trained Dental Nurse can admirably perform this simple but important work. This is one of the things for which the Course was designed.

Now, an untrained girl, one who has not enjoyed the advantages of a Dental College with all its various departments and modern teachings, cannot realize the importance of such work, no matter how many years she has been in one office. Invariably, the longer she has been in one office, the more "set" she has become. An intelligent nurse works at a decided disadvantage if she has not the knowledge of a dozen authorities' views and opinions and methods.

One Dentist writes:—"What does an ignorant Hygienist know of the importance of Prophylaxis after one year's training?" Why should she not know? Not only is this important branch of Dentistry emphatically impressed on her mind at the College, but are not the Monthly Journals just teeming with information on this subject? And I venture to say, that the average Dental Nurse reads and studies these magazines, and uses their suggestions, and influences the Dentist to use them, a great deal more than the average busy Dentist.

The untrained assistant has very little, if any, interest in these articles, as they are beyond her comprehension, "over her head" as it were, without the advantage of a good scholastic foundation.

From the accurate records of Dentists who are employing Dental Nurses, we find that the following are some of the results; more patients per month are seen, more work done per patient a sitting, the number of sittings reduced, the operator's day shortened, more satisfaction to the patients, and greater financial returns.

Do not these results speak loudly in favour of the Graduate Dental Nurse? Are they not due to the increased ability of a carefully-trained assistant?

The Dental Nurses are little more than two years old, as yet, but they are fast coming into their own. Give them encouragement by your help and advice. They need and will appreciate it. We only ask your co-operation in the Dental profession, by passing a good word along in our favour.

Very sincerely,

# Obituary

# Harry James Cox

Mr. Harry James Cox, a very familiar figure in the dental supply business in Ontario, died Dec. 23rd, 1921. He was born in Toronto, son of William H. Cox, Druggist. Educated at Jesse Ketchum School and Jarvis Collegiate, he first entered the employ of the former Scottish and Manitoba Land Company. He then became a city traveller in dental supplies for the C. H. Hubbard Co., later transferring to the S. S. White Co., for whom he travelled in Western Ontario. Later still he was connected with Claude Ash, Son and Company, and for the past ten years he had been city traveller for the Temple Pattison Company. He attended Central Methodist Church. Prominent in Masonic circles, he was a member of Georgina Lodge and Antiquity Lodge, Royal Arch Masons. He is survived by his father and one brother, Alfred.

### Dr. James J. Loftus

Dr. James J. Loftus died suddenly at his home, 198 Spadina avenue, Toronto, Dec. 21, 1921.

Dr. Loftus was born in Atta, Simcoe County, 59 years ago, but had practiced his profession in this city for the past 30 years. The suddenness of his death will be a shock to a great many friends. On Monday evening he was enjoying good health, but early the next morning he was seized with a stroke, followed shortly by death.

He attended St. Mary's Church, and was a past President of the St. Mary's branch of the Holy Name Society, of which he was an active member up to the time of his death. He was also a member of the Knights of Columbus, the Catholic Order of Foresters and the Big Brothers' Association.

Surviving him are his widow, Mrs. Florence Loftus, three sons; James L., of The Globe, William A., Basil, and a daughter, Catherine.

FOR SALE—Dental practice, fully equipped, modern office. For further particulars apply to H. MacCrostie, Westaskiwin, Alta.

FOR SALE—Dental Practice, fully equipped office. A good opportunity. Apply to Carl E. Klotz, St. Catharines, Ont.

# Dominion Dental Journal

Vol. XXXIV.

TORONTO, FEBRUARY, 1922

No. 2

### ORIGINAL COMMUNICATIONS

# The Best Methods of Overcoming the Dread of Dental Operations

Mark G. McElhinney D.D.S.

Read before the Ottawa Dental Society, Jan. 1922

From the point of view of the dental patient the outstanding deterrent is the fear of pain and if such can be overcome the subsequent procedure is made much more easy.

This fear arises from two main sources. The first source is in the inherent, natural shrinking which all sentient beings feel toward suffering and the second arises from the traditions of the older dentistry when local anaesthesia, technique in instrumentation and the modern excellence in adaptable instruments were unknown.

The emotions arising from the first source are enhanced and exaggerated by those arising from the second; so much so that if we can disabuse the mind of the patient of the traditional fear it is not very difficult in most cases to greatly reduce the influence of the inherent and natural fear.

Natural fear is one of the elements which go to make up what we call the "Law of Self-preservation." It is a legitimate and very necessary emotion without which man would soon fall a victim to recklessness. All normal persons possess this fear and most have the faculty of exercising a certain control over it through the intellectual processes, in short, common sense.

This brief analysis of the Dread should enable us to devise some general plan of procedure towards its alleviation.

The wide variations of individual temperaments make it impossible to reduce any procedure to a formula but we may discover some general direction to be pursued.

The problem now becomes one of psychology but not of a sort too deep for the ordinary practitioner.

It is summed up in the word "tact". Tact is the ability to

impress the patent with the ideas which are intended to be conveyed along the lines of the least resistance.

The first requirement is the avoidance of antagonism, because force, even in a mental sense, breeds resistance.

The office of tact is to overcome the objections and doubts before they become translated into conscious resistance, that is, to surmount the obstacles before the patient recognizes them as such and so that they fade in view of the important object to be attained.

Considering the young child, the first requirement is absolute honesty in word, act and intention. The child, uncorrupted by contact with mistaken elders, is naturally honest. Fear is the chief source of dishonesty in children when such exists. Fear of punishment, of ridicule and of pain are a child's chief fears. A child's fear of pain is not so much a physical matter as might be imagined unless the child has been subjected to cruelty.

It is a good plan to have timid children come to the office several times before attempting any operation excepting where necessity requires a simple treatment to relieve actual pain.

The child becomes accustomed to the office and to the dentist and if he will talk "Mud Pies" as some writer has happily phrased it, the child will come to regard the dentist as a friend.

Once the confidence is gained much can be done but woe betide the dentist who deceives the child. Force should never be used and if the child asks if it will hurt, it is better to tell the truth in the easiest manner possible so that if pain does arise the child will not feel that it has been deceived.

It is well also in first and emergency treatments to use a medicinal agent that is not too disagreeable even if it be less efficient than desired.

Once full confidence is established, gentleness and skill will do the rest.

With older children, the growing boy and the growing girl, the way is easier. The way to a boy's heart is through his interests and he usually has many. Some are studious, some mechanical, some adventurous. Find the master key and the problem is well on to solution. There is little difference between the boy and the girl from a psychological standpoint. The interests are likely to be different in kind but not in motive.

Psychological differentation between the boy and the girl follow adolescence and that has really little to do with our problem excepting that during their arrival at puberty they may be subject to a variety of notions and emotions that may make them at times

seem unreasonable. It is the period of stress during which they are finding themselves.

With men and women, especially with women, the problem widens. Upon the surviving heritage of childhood is superimposed the knowledge, experience and often the hardened prejudices of the adult.

When the knowledge is faulty, the experience unhappy and the prejudices deep-rooted, lack of tact on the part of the dentist is liable to spell "Waterloo."

The best procedure would appear to be the straightest possible statement of the case, of its chances of success or of failure based upon similar cases which may be impersonally cited.

The greatest possible mistake is to promise too much. The whole profession suffers today from the reckless promises of perfection on the part of too many of our predecessors. While there are perhaps wide differences in knowledge and in skill amongst the members of any profession, there is a good average in all.

Under modern conditions, knowledge is available to all members of a profession and of secrets there are few, if any. The "Best Dentist" is a myth. Some excel in some departments, some in others, some are pretty good all round but no one masters all. It is well to remember this and cultivate a dignified modesty which will be appreciated fully by the most intelligent people in the community.

By following the golden mean, being neither arrogant nor servile, there is built up a confidence between the patient and the operator and when this is accomplished we have done the most that can be done toward the removal of the dread of our operations.

# Principles Upon Which Restorations Should be Made

Forrest H. Orton, St. Paul, Minn.

Delivered to Toronto Dental Society, Dec. 5, 1921

Dr. Orton in the preliminaries of his paper which delighted the Toronto Dental Society had for his first guiding point, the following chart:—

CONDITIONS AS	MET—CROWN AND	BRIDGE WORK
Factors	Favorable	Unfavorable
	Positive	Negative
Bridge Space	Short	Long
" Alignment	Straight	Curved
Bridge bite	Average	Abnormal
Alignment		close or long
Masticating Force	Light	Heavy
Opposing teeth	Artificial	Natural
"	Occlusal length normal	Extruded
Abutments, position	Normal	Out of arch
"	Parallel	Converging
		Diverging
		Axes crossed
" Roots	Normal number	Fused
	,, length	Short
	,, direction	Tortuous
Peridental attach-	Thin, dense	Thickened
ments of abutments	covers entire	Loosened
	roots	Part destroyed
		Inflamed
Pulp of abutments	Receded	Large
		(young patient)
	Normal tone	Diseased

## BASIC CONDITION PRINCIPLES—CROWN AND BRIDGE.

- 1. Physiologic Tone—of all supporting and investing tissues.
- 2. Adequate support—for the bridge structure in proportion of work demanded of it.
- 3. Protection to soft tissues—By outline and contour form in accordance with Dental Anatomy.
- 4. Normal Articulation—implying also normal occlusion, esthetics. Treating these points in a general way and pointing out that it was not the mechanical part of the restoration that was so important in the success in crown and bridge work but the Basic Principles upon which the restoration was made.

Dr. Orton then gave statistics for some 369 models examined to show in a general way which teeth were most frequently lost and subsequently most frequently to be restored in the mouth.

In examination of 269 lower models it was found that

182 models had the 1st. molars lost

79 ,, ,, ,, bicuspids ,, 6 ,, ,, incisors ,, 2 ,, ,, cuspids ,,

N. B.—from these statistics one would see that the lower hygienic bridge should be intensified in the teaching of bridge work. In examination of 100 upper models it was found that

60 models had the bicuspids lost

20 ,, ,, ,, 1st molars ,, 8 ,, ,, 2nd molars ,, 6 ,, ,, incisors ,,

1 ,, 2nd cuspid & incisors lost.

Regarding the loss of teeth Dr. Orton showed clearly that very little change takes place in the maxilla following extraction, comparatively speaking, while in the mandible, terrific change takes place, especially in the region of the bicuspids and molars, more markedly still in the location of the 1st molars. The effect on the 2nd. molar by the loss of the 1st. molar in the lower is shown by marked mesial and lingual tipping of lower second molars, which changes are the only ones that can possibly take place. The effect on the bicuspids due to the loss of the 1st. molar is shown by intrusion of the bicuspids, stress is thrown on opposite side, on the buccal cusps of the lower and the lingual cusps of the upper and occlusal planes are actually reversed. The effect on the anterior teeth when the lower 1st. molar is lost is excessive stress and closing of the bite.

In dealing with the loss of Facial Dimensions the noted crown and bridge authority explained how this could change the relation of the neck muscles. The mandible is held in the right position by the teeth, and holds the throat open and supports the hyoid bone. Loss of Facial Dimension causes the face to fold up, also the condyles of the mandible fall back, and situated as they are directly in front of the Enternal Auditory Meatres, it is easily seen how the sense of hearing might be affected. In thirty partially deaf cases, Monson caused relief by adjusting the condyle to normal position by widening the bite.

A goodly number of lantern slides were then shown, work done by some of the finest operators in the country but which did not fulfill the requirements for a fixed bridge, erring mostly in anatomical form and broad contact points. Dr. Orton pointed

out the errors in dental anatomy, the stove pipe effect of shell crown which forces food particles against the gum tissue around gingival margin instead of away from the tooth as nature intended. The importance of dental anatomy was then dwelt upon, the fundamental principle upon which a successful practise in this work depends.

Extension for prevention applies more to crown and bridge, even than to Operative Dentistry. The interproximal space must be left as in the normal, otherwise havoc is wrought.

Balanced Occlusion is an essential to success in crown and bridge work. The Buccal cusps of the molars and bicuspids have a shearing action as also do the incisal edge of the incisors and cuspids. The tritucation is done by the lingual cusps. The incline planes of the teeth guide the movement of the mandible when once the surfaces of the teeth come in contact.

Monson in his valuable researches concerning this has determined many things using as a definite starting point the four inch sphere. He found that a wheel would fit along the curve of the lower teeth, not only mesio-distally but bucco-lingually which shows the planes to conform to the shape of a sphere. Monson found that the wheel which seems to fit the curve of the teeth most universally was an eight inch diameter wheel, thus giving a circle of four inches which he used for the radius of his circle for the sphere. He also found that the arc of the circle conforming to the curve of the teeth when extended passed through the condyle of the mandible. Count Spee was the first man to note this. Where Balanced Occlusion is omitted and traumatic occlusion on certain teeth occurs, Pyorrhea is sure to follow.

While in Sweden a great number of models were submitted to Dr. Orton and without seeing the actual cases, he was able to pick out in a large majority of cases the teeth which had pyorrheal pockets.

Dr. Ante led the discussion dealing with the various points of Dr. Orton emphasizing the changes following extraction, the slight change in the maxilla, the terrific changes in the mandible, thus showing the necessity of making restorations at an early stage. He also spoke of the drifting of the lowers mesially and lingually. Anatomical construction was also ably dealt with, in order that the food might be directed away from the gingivae, not against it. The normal contact was again emphasized, showing the preference of the billiard ball contact to the wide, strong unsanitary, unanatomical contact usually found in bridges and establishing unfavorable conditions.

# Ductless Glands and Their Relation to Vital Phenomenae

W. J. Armstrong

Functions of body can be controlled by chemical means—examples:—(1) administration of drugs, (2) body regulates itself by drugs which it specially prepares.

The more widely tissues differ, the more they can make use of the end products of the others metabolism. They require a specially elaborated secretion to produce a beneficial action. Of such secretions the hormones produced by ductless glands, and other glands are outstanding examples.

In addition to proper ration of protein, carbohydrates, fats and salts, animals require vitamines which appear to be produced by vegetable tissues. In absence of vitamines certain deficiency diseases develop as (1) scurvy (2) rickets (3) beri-beri also the adrenals and pituitary enlarge while the other ductless glands tend to more or less atrophy.

Sympathetic nervous system controls ductless glands. Adrenals

Medulla is an outgrowth of the sympathetic nervous system, while the cortex is developed from the Wolffian body which also provides the interstitial cells of the reproductive glands. Disturbances of medulla chiefly affect nervous system—of the cortex the reproductive system.

An injection of adrenalin which is a secretion of the medullary part of the gland produces exactly the same effect as stimulation of the sympathetic-pupil dilates to increase perception of light; blood pressure rises to assist circulation; the heart beats faster; skin sweats to cool the body, heated by exertion. Their action is reciprocal—the sympathetic stimulates secretion of adrenalin while adrenalin increases the sympathetic response. There is little evidence in disease of over-action of adrenalin though it is possible some conditions of raised blood pressure with glycosuria in later life are due to this since they may be brought on by overstrain and worry which irritate the sympathetic, and adrenalin excess would raise both the pressure and sugar of the blood. Addison's disease is an example of adrenalin defect—all the symptoms can be attributed to loss of sympathetic action. Failure of the inhibitory action of adrenalin on the stomach would tend to vomiting and of its stimulating effect on the vasoconstrictor nerves to low blood pressure and a relaxed condition of the peripheral vessels which would lead to pigmentation.

Adrenalin has tonic effect on striped muscle. When the medulla of the adrenals is destroyed, purpura replaces pigmentation.

Adrenalin exhaustion may follow prolonged strain thrown on the sympathetic by prolonged physical and mental conflict and infection. This proven by such acute infections as diphtheria. Adrenalin exhaustion may enter into many funtional states especially when accompanied by a low blood pressure.

Thyroids

Close relation between thyroids, sympathetic nervous system and reproductive glands. Thyroid tends to enlarge at puberty, marriage and in pregnancy while myxoeden is most apt to occur just after the climateric. Sympathetic irritation produces enlarged thyroids and Graves' disease.

The sympathetic stimulates the thyroid and the thyroid secretion lowers the threshold to sympathetic stimulation. Thyroid exhaustion brings about an irritable weakness.

Thyroid both governs the building up of the cells and regulates the destruction of the protein molecule and its elimination. To thyroid inefficiency may be attributed such symptoms as defective growth; relaxation of the articular ligaments especially in the knee, heel, ankle and thoracic vertebrae causing Knock-knee, painful heel and flat foot; diminished coagulation of the blood; headache; giddiness and somnolence.

### Pituitary

Also associated with reproductive organs and the sympathetic system which causes the secretion. Anterior part of pituitary has effect on body temperature, growth, the cutaneous tissues and reproductive organs. Intermediate part of gland influences carbohydrate metabolism. In excess its secretion lowers sugar tolerance and may excite glycosuria. Secretion of the posterior lobe is a stimulant to plain muscle and to the secretion of milk. Action on plain muscle is better seen in an emergency; raises blood pressure lowered by shock; acts on a failing heart, acts on plain muscle of bowel when paralysed; does not cause contraction of uterus until labor has begun.

Stomach, Duodenum and Pancreas.

Main functions are anabolic, co-operate with the vagus.

i. e. the parasympathetic rather than the sympathetic.

Parathyroids.

Control distribution of calcium in the body. When their secretion is deficient the tissues loose some of the calcium which has a sedative action on nerve cells so that this loss increases nervous excitation.

Other Ductless Glands.

Interstitial cells of reproductive glands form an internal secretion and obesity follows, then loss. The thymus is mainly an infantile blood forming organ. Overaction of thyroid causes hypertrophy of thymus as in exophthalmic goitre. Generally disappears with sexual maturity.

Liver is the most important metabolic workshop of the human body and throws many substances into the blood stream—sugar, urea, unsaturated fats prepared for combustion, antitoxins and something which influences the coagulation of blood.

The spleen although the largest ductless gland appears to form no internal secretion.

Classification of Ductless Glands.

Fall into two main groups:—The first groups interact chiefly with the sympathetic and are accelerators; the second group with the parasympathetic and are inhibitors. The former display kinetic energy, the latter store up potential energy.

General Principles of Internal Secretion.

In early life thymus acts as a brake. Then active growth continues with the thyroid and pituitary until puberty is reached. At the climacteric the sedative action of the parathyroid is noticed—the intercostal cartilages grow rigid, the arteries become calcareous, the organism slows down and the subject passes away from senility except a violent death is encountered.

# The Nostrum and the Public Health

Arthur J. Cramp, M.D.

Read Before the Chicago Medical Society

Broadly speaking, the nostrum belongs in one of two general classes; one class comprises those unscientific mixtures that are advertised primarily to the medical profession, and first reach the public by way of the prescription; the other class includes those mixtures that are sold direct to the public. Nostrums in the first class are sometimes spoken of as "proprietaries;" those in the second class are colloquially known as "patent medicines." The public suffers from both classes, the only difference being that in the case of the former the physician has to share the responsibility with the nostrum exploiter. There is no clearly defined line of demarkation between these two classes. Many of the "patent medicines" of today were the "proprietaries" of yesterday. Shrewd manufacturers-or, more correctly, exploiters, for many of these products are not manufactured by those that sell them-discovered years ago that one of the least expensive methods of introducing a nostrum to the public was by way of the medical profession. After the profession had been widely circularized and much space bought in the advertising pages of medical journals of a certain type; after uncritical or unthinking physicians had prescribed the products (of course in the "original package" with the name blown in the bottle or a monogram stamped on the tablet); after the patient had learned with disgust that his physician had merely prescribed a "patent medicine" that could more cheaply have been purchased direct - then the one-time "proprietary" threw off its "ethical" mask and became frankly a "patent medicine." Such has been the genesis of many a "patent medicine" on the market today. Others, less deviously, have gone directly to the public at the outset.

The present paper deals with the "patent medicine" evil. Correctly speaking, there are practically no true patent medicines on the market; first, because few if any of the products of this type could be patented, and second, because patency or openness is the last thing the average "patent medicine" seller wants. Mystery and secrecy are his great assets. A product to be patentable must, according to the law—not always enforced, by the way—represent something new and useful; and this requirement of the patent law rules out the "patent medicine." A patent when granted gives

the owner a legal monopoly on his product for seventeen years, after which time the product becomes public property. The "patent medicine" seller finds it easier and far more profitable to put together a simple mixture of drugs that represents nothing either new or useful, to which he gives a fancy name, and obtains a trade-mark on that name. The trade-mark gives him a perpetual monopoly to the name and places no restrictions on the composition of the product; nor, in the granting, is he required to give any information regarding its composition.

Thus "Winslow's Soothing Syrup" is still "Winslow's Soothing Syrup" in name, although the product on the market today bears but little resemblance to the original preparation sold under that name. As sold in the United States, it used to contain morphin and alcohol. As sold in Great Britain, potassium bromid was substituted for morphin because the British law requires the word "poison" on all "patent medicines" containing morphin. As the public in our country became aroused to the menace of the "baby killers," many drug stores refused to handle the Winslow preparation. Then the formula was changed, and changed again, so that today it contains neither morphin nor alcohol. But it is still "Winslow's Soothing Syrup."

### THE FOOD AND DRUGS ACT

There has been a tendency during the past few years to assume that the federal Food and Drugs Act, commonly known as the Pure Food Law, effectively safeguards the public against the menace of the nostrum. Although this law has been in force for more than twelve years, there is still some misapprehension of its powers and limitations. First it should be realized that the law applies only to products that enter into interstate commerce; that is, those that are made in one state and sold in another. The federal Food and Drugs Act, for instance, exercises no control over the sale of "patent medicines" made in Illinois and sold anywhere within the state of Illinois, no matter how fraudulent the claims may be as to therapeutic effects, composition, or source or origin. The only way such preparations can be reached is under the state law.

It should also be realized that the Food and Drugs Act has no jurisdiction over claims made for foods or drugs except as those claims appear in or on the trade package. When the law was first passed, many "patent medicine" makers assumed that the term "label," as used in the Act,

applied solely to the piece of paper pasted on the bottle. On this assumption, they modified the false claims they had been making on the label but continued to falsify in the circulars that were wrapped around the bottles. They soon found to their cost, however, that the courts gave a broader and more logical meaning to the word "label," including all of the printed matter in or on the trade package. The Foods and Drugs Act exercises no control over statements that are published separate from the trade package—such as in newspapers, hand-bills, etc.

The Pure Food Law, as first enacted, prohibited, within the field it covers, "false or misleading" statements "in any particular." The officials entrusted with the enforcement of the Act assumed that this meant just what it said, and the majority of the "patent medicine" makers followed that assumption. Then the Supreme Court decided (in a divided opinion) that the law as it stood did not apply to statements regarding curative effects, but only to statements relative to composition and origin. This decision, of course, let down the bars immediately to the most obvious frauds. The more unscrupulous "patent medicine" makers care little about restrictions regarding the composition of their nostrums; they are much more concerned with being free under the law to make any assertion they see fit regarding the curative effect of their preparations. Then came the Sherley amendment to the Food and Drugs Act, which specifically prohibits "false and fraudulent" statements regarding the curative effects of medicines. It is to be noted that falsehood alone is not sufficient to secure conviction; the manufacturer must also be found guilty of deliberate intent to defraud.

Under the Food and Drugs Act, then, the manufacturer of a medicinal product may be declared guilty of misbranding, if the statements he makes (on the trade package) regarding the composition or the origin of his products are either "false or misleading"; he may also be found guilty of misbranding if the statements he makes (also, on the trade package) regarding the curative effects of his preparations are both "false and fraudulent."

Limiting the scope of the application of the law to the claims made on the package, is one of the fundamental weaknesses of the Food and Drugs Act. The law does not penalize the most outrageously false claims of any kind or description regarding "patent medicines," if those claims ap-

pear in newspaper advertisements, circulars, etc., that do not accompany the trade package. Yet it is the newspaper advertisement or the circular that sells the product, rather than the matter on the trade package, which the public does not see until after it has purchased. Thus we have the anomaly of a law which allows a manufacturer to lie to his heart's content in those avenues of publicity in which lying will be most profitable and do the maximum amount of harm, and restricts merely the statements he may make in his trade packages. This limitation in the Food and Drugs Act furnishes a sure way of determining with almost mathematical accuracy what statements regarding a "patent medicine" are false: From the claims made in the newspaper advertisements and circulars subtract those that are made in the trade package; the difference, you are justified in assuming, is falsehood!

### LIMITED FORMULA DISCLOSURE

The "Pure Food Law" has one more power in protecting the public against the nostrum evil: It requires "patent medicine" sellers to declare (on the trade package only) the presence and amount of eleven drugs and their derivatives: alcohol, morphin, opium, cocain, heroin, alpha-eucain and beta-eucain, chloroform, cannabis, indica, chloral hydrate and acetanilid. Further than this, the law permits the manufacturer to maintain complete secrecy regarding the composition of his preparation. He can if he wishes, put in his product such deadly poisons as carbolic acid, arsenic, strychnin, prussic acid and aconite, and the public is none the wiser.

Many people have thought that the legend "Guaranteed under the Food and Drugs Act" that used to appear on bottles and cartons indicated that the federal government had in some way passed on the product and given it a clean bill of health. Nothing of the kind. Before the guarantee clause was abolished, any manufacturer could write into Washington and ask for a serial guarantee number, and Washington had no choice but to issue such a number—this, no matter whether the medicinal product was good, bad or indifferent, whether the claims under which it was sold were truthful or false or whether the drugs it contained were harmless or dangerous. All that the guarantee clause ever meant was that were the product sold in violation of the law, the person to whom the guarantee serial number had been issued would be held responsible, rather than the individual retailer. Some of the most outrageous swindles in the "patent medicine"

world have been "Guaranteed under the Food and Drugs Act." Summed up, then, it may be said that the federal Food and Drugs Act gives the public a certain measure of protection. It permits the public to know the names and amounts of eleven drugs and their derivatives, and it limits the claims that can be made for these products, so far as such claims appear in or on the trade package.

THE PHYSICIAN'S INTEREST IN THE NOSTRUM EVIL

The nostrum evil is essentially a public health question. although, as in the case of many public health questions, it has its economic angle. The "patent medicine" maker persistently charges that the medical profession's opposition to "patent medicines" as now exploited is based on the assumption that the sale of such products diminishes the income of the physician. The charge, of course, is as malicious as the assumption is false. Next to the "patent medicine" men and the newspapers that share the profits of nostrum exploitation, no class receives greater financial benefit from "patent medicine" advertising than physicians. A hundred people see an advertisement of "Doan's Kidney Pills," with its "Every Picture Tells a Story" illustration conveying the impression that an ache or pain in the lumbar region indicates kidney disease. Out of this hundred, let us suppose one half, because of some passing pain in the lumbar region, are convinced that they have Bright's disease or some kidney ailment. Of the fifty thus frightened into the belief that they are ill, it may be conservatively claimed that considerably more than half will go to their family physician rather than to the drug counter. If all "patent medicine" advertising were abolished tomorrow, next to the exploiters of "patent medicine" and some newspaper proprietors, no one would suffer larger financial loss than the physician. The physician, of course, is opposed to the average "patent medicine" because it is exploited in such a way as to cause the public to magnify its trivial ailments, to drug itself unnecessarily and in cases in which something serious is the matter to lose vitally valuable time in seeking medical aid. Were the physician's attitude toward "patent medicines" prompted by commercial considerations he would say to the nostrum exploiter, "Go the limit; the more victims you get, the more patients I get!"

AN ECONOMIC EXCUSE FOR HOME REMEDIES
Under the present economic system there is a place for

home remedies for the self-treatment of simple ailments. It may be that in Utopia the ailing always go to their medical advisers, no matter how trival the ailment; but this is not Utopia. No one expects every person who suffers from a passing attack of constipation to go to his physician for a prescription. He is going to the drug store for a cathartic of some kind. Admitting that the abuse of cathartics is one of the most widespread and pernicious of the evils of selfdrugging, and admitting, further, that the rational treatment of constipation may not call for any purgative drug, the fact remains that in such cases the man in the street is going to take cathartic drugs, at least until he is better informed. The duty of the medical profession in the premises is to warn the public of the danger of the purgative habit and to urge that some restrictions be thrown around the sale of cathartic medicines. The same applies to the use of other medicinal products that may rightly be classed as home remedies.

Unfortunately, the home remedies of today are generally speaking, "patent medicines;" and the methods of promoting the sale of "patent medicines" make those products a menace to the public health. This not altogether for what the remedies themselves contain, although in many instances that is distinctly bad, but because of the way such products are exploited. Modern advertising differs from that of the mid-Victorian era in one vital respect. In the earlier days the advertiser notified the public where demands might be supplied. Today the advertiser bends his efforts toward making the public demand things which otherwise it might not want or even know about. This principle may have no serious consequences, other than economic at least, when applied to the ordinary commodities of commerce. There may be more or less plausible arguments in favor of so advertising pianos, automobiles, clothes, or what not, as to persuade the public to purchase more of these articles than it really needs or can afford. There can be no excuse, however, for using such methods in the sale of preparations for medicinal purposes. So to advertise as to make well men think they are sick and sick men think they are very sick, for the sole and only purpose of causing them to purchase drugs to pour down their throats, is more than an economic offence; it is a crime against the public health. Yet this is the principle on which the average "patent medicine" of today is sold.

SEQUENCE MISTAKEN FOR CAUSE AND EFFECT

There is an additional reason why the present method of exploiting drugs for the self-treatment of disease is vicious. In the sale of medicaments, we have a class of merchandise that lends itself peculiarly to fraudulent exploitation. The non-expert who is led by misrepresentation to purchase a piano or a suit of clothes which is not up to the specifications learns sooner or later that he has been swindled, and he profits by the lesson. There is no such automatic check operating in the case of medicaments. John Smith gets up some morning feeling sick. It is but a passing indisposition and in a few days he will be himself again, whether he does something or does nothing in the way of treatment. In opening his morning paper, John finds, carefully detailed, just the symptoms that he seems to have, and he is assured that they may be cured by taking "Pink Pills," "Nuxated Iron," "Tanlac," "Peruna" or what not. On his way down town he buys one of these preparations. In a day or two he is well again-as he would have been in any case-and you never can persuade him that his recovery was due to the healing power of nature and not to the preparation that he had been taking. It is equally true, of course, that had he gone to his family physician and received a prescription or had gone to an osteopath and had his back rubbed, or called up a "Christian scientist" and received an absent treatment he would also have been willing to credit any one of these agencies with his recovery. The point to be emphasized is that it is a very human tendency to credit to artificial agencies all results that are really due to natural causes. The post hoc ergo propter hoc mode of reasoning is well-nigh universal, especially among those without scientific training. Even the medical profession is not altogether free from confusing a mere sequence of events with cause and effect. Here, then, is the reason for urging that in selling medicinal products a different method should be employed from that used in selling ordinary merchandise. The seller of general merchandise has nature as an opponent; wear and tear is constantly against him. The seller of medicaments always has nature as an assistant. The tendency of the human body in sickness is, in the majority of instances at least, to get well; but the healing power of nature seldom receives credit.

### THE REMEDY

What, then, is the remedy? Obviously there should be home remedies available that are unobjectionable from the

public health point of view. Such products should contain no habit-forming or dangerous drugs; they should not be recommended for diseases that are too serious for self-treatment; they should be non-secret because the public has a right to know what it is taking; finally, they should not be advertised under false claims or in such a way as to make the public magnify trivial ailments and dose itself unnecessarily with drugs. Products which conform to these requirements are to be found on the shelves of every drug store in the country. They comprise certain simple official products from the United States Pharmacopæia or the National Formulary. Naturally, they are non-secret, and being official, their standards of strength and purity are constant and enforced by state and national laws.

As most of the large pharmaceutical houses in the country make them, the element of monopoly is removed, and competition assures their being sold at a reasonable profit. The enormous overhead expense inseparable from the modern method of "patent medicine" exploitation is entirely eliminated. John Smith does not realize that when he pays a dollar for "Dr. Quack's Panacea," at least 75 cents of his dollar represents the cost of the effort on the part of Dr. Quack to convince Smith that there is something seriously wrong with him and that "Quack's Panacea" is the only thing that will cure him. In other words, Smith pays a dollar for 25 cents' worth of drugs and service, plus the privilege of being frightened into the belief that he is seriously sick and that these drugs are essential to his recovery.

Since official drugs, i.e., Pharmacopæial and National Formulary preparations, are nonproprietary, the chief incentive to fraudulent or misleading advertising claims is removed. John Doe & Sons' brand of Blaud's pills, differs in no essential respect from the Blaud's pills of Henry Rowe & Co. The margin of profit on the sale of Blaud's pills is so small that it would hardly be profitable for one manufacturer to attempt any widespread advertising campaign for the special purpose of increasing the sale of his particular brand, even supposing it were possible for him to make claims that could not demonstrably be proved false.

When the public is properly informed, so that it knows what preparations to call for in order to treat its simpler ailments, advertising of home remedies will be entirely unnecessary. It develves on the medical profession, and other agencies entrusted with the solution of public health problems, to give the public just these facts. In an article published two or three years ago, Dr. Harvey W. Wiley suggested that the American Medical Association should appoint a representative committee to select a few simple home remedies for what he called the "Mother's Medicine Chest," which could be used by the public for self-treatment of the milder ailments. He urged, further, that somewhat complete directions should be published, describing the nature of the troubles in which these remedies were to be used, and the amount that was to be given under various conditions, in every case, of course, calling attention to the potential dangers inseparable from self-diagnosis and self-treatment. Whether such a task should be undertaken by a scientific organization such as the American Medical Association, or by governmental agencies such as the United States Public Health Service, is a question. There is little doubt, however, that when such information has been widely disseminated, even if it takes a generation to do it, the making of hypochrondriacs by suggestion, and the widespread evil of undecessary drugging, will be gone. Gone, too, will be the business of those nostrum exploiters who capitalize human fear and fatten on human credulity.

### **SELECTIONS**

# Inflammation of the Eye from a Diseased Cuspid

Thomas Brown, L.D.S., Thorold (Focal infection understood by dentists, 1869,—Editor)

A lady suffering from severe inflammation of the eye for eight months, having in the meantime tried several eye curatives and medical advice, all to no purpose, called at my office, and asked me if a tooth could produce inflammation of the eye. Being answered in the affirmative, she requested me to examine her teeth. They were in good condition, with the exception of the left superior cuspid, which she said had been filled in the States: the filling was still in, but had been bored through at some time for the outlet of pus; into this opening there had been plugged cotton, which was pushed down into the canal. In answer to a question if she could remember how long it was since—she had the tooth drilled,

and what it was done for she replied that there was a slight pain and swelling and that she went to a dentist, some two years previous to her having trouble with her eye; that he drilled the tooth, filled it as above stated with cotton, told her to call in two weeks and have it permanently filled, which, she says, she did, and paid for it. Felt no symptoms of pain afterwards, (the fact was the cotton was left in or else replaced with the same material). On tapping the tooth, there was slight pain at the root; when the cotton was removed there was a foul smell. I cleansed out the cavity, found decay had extended down the canal: the sides of the tooth were no thicker than a goose quill, produced by foreign substances, the decay extended in like manner down the root; there was no appearance of inflammation of the gum near the root. The tears ran down the cheeks as in fistula lachrymalis; could not bear the least ray of light; the eye was very painful all the time. I told her that I thought it was the tooth that was causing the inflammation of the eye. There was no granular growth on the inside of the eve-lids. Having asked other questions there was not the least doubt in my mind but that it was the tooth that was the real cause of all the trouble. After I had given my opinion, and advised the extraction of the tooth, she said she was afraid, it being the eye tooth, and that she had made up her mind now to go to a doctor in the States, who had a great reputation for his skill and success in treating diseases of the eve. She left my office, and, in going down the street, met Dr. Palmer, asked his advice; he said, she had better go with him down to the office. She did so. After a careful examination, he said he would do nothing for the eye, until she got the superior cuspid extracted. Advised her to go to the dentist; next day she came back to me and had the tooth extracted. There was a quantity of thick yellow matter at the bottom of the socket. I cleansed out the matter and injected diluted carbolic acid. She then went down to the doctor: he gave her a bottle of eve-water. This was in December, 1869. She called in March, 1870, to say that her eye was as well as ever; that she did nothing more than apply the eyewater a few times to her eve after the extraction of the tooth. I saw her the other day; she is all right. April 6, 1870.

Canada Journal of Dental Science.

### DENTAL SOCIETIES

# Canadian Oral Prophylatic Association

Annual Address of the President

A. J. McDonagh, D.D.S., L.D.S., Toronto

In reporting the progress of the C. O. P. A. for 1921 I will mention but a few outstanding facts, as Dr. Harry S. Thomson's report will deal fully with the details.

Our membership has increased materially in the last year, we having had about one hundred and twenty applications.

Unfortunately we have had one death, Dr. James Loftus, who has been with us as a member during all our years of operation. He was one of our staunchest friends and a most useful member and I regret exceedingly to report his death.

During the year your executive has had a great many meetings. The Association at its adjourned last annual meeting met at the same time as the Ontario Convention in the Y. M. C. A. At this meeting Dr. Thomson gave us an outline of the wonderful work being carried on in the Dental Research Department of the University of Toronto, through the funds supplied by the C. O. P. A. The Dental Research on April 6th, brought Dr. Gies of New York, to the Physics Building of the University of Toronto to deliver a lecture on "Diet and the Effect of the Internal Secretions on Dentine" which lecture, by the way, was very much appreciated by one of the largest audiences, composed of Medical men and Dentists, that has ever been seen in Toronto. It is to be hoped that much good came from this lecture which was of great interest to both professions.

We have made a great effort this year to get United States business going and have had a great many difficulties to overcome in this field. The Association is to be congratulated on having such a capable executive as Dr. Thomson has proved to be. Through his efforts I believe, we have succeeded in getting the United States business fairly well launched, though results are not as gratifying as we had hoped they would be. In this connection Dr. Thomson went to New York and made an exhibit at the New York State Convention. He also went to St. Louis to carry on negotiations with the Lambert Pharmacal Company, and to New Brunswick to attend the Provincial Meeting. He attended a convention in Montreal at which he delivered an address, also one in Peterborough, all of which work must necessarily bear fruit, not only for the good of the ultimate financial side of our undertaking but from an

educational standpoint as well, thereby benefiting Dentistry generally, which of course is our prime object.

On account of business depressions and other factors which Dr. Thomson will enumerate, our profits for the year are not as good as we would like them to be and our expenses are greater than they have ever been; in fact in order to do the work which we have set out to do, the dentist must come to the rescue by recommending Hutax products or we will have to make some change in our present expenditure. The one fact which has militated against our success more than anything else, was that while the war was on and immediately after the close of the war our agents bought brushes, which at that time were the best they could get, but which were not up to our standard of brushes. They were made with transparent handles and were not wire drawn. At the present time, however, our agents both here and in the United States, have a full supply of bone handled, wire drawn brushes, than which there are none better in the world.

In the United States there has been a firm imitating our brushes and selling them, we believe, quite extensively. Not only have they taken the word Hutax but they have used our name C. O. P. A. and made a poor imitation at that. We are taking legal proceedings against them.

I want to thank all the members of the Association for their support and good will during the year. Particularly do I want to thank the members of the Board of Directors and our Dental Executive.

# Report of the Dental Executive for 1921

Harry S. Thomson, M.D.S., L.D.S., Toronto

Toronto, January 17th, 1922.

The year 1921 which has just closed has perhaps been the busiest year since our organization and this fact in itself brings with it many difficulties, of which heretofore we knew nothing. Along with our increased activities we have to remember, too, that we have just passed through a period of great business depression—world-wide in its scope—and extending into every line of trade. Our business, along with others, has been affected by it, and for this reason we have to report a slight falling off in the sales of Hutax Products. A falling off in the sales necessarily means lessened revenue—and lessened revenue and increased activity are hardly compatible.

I am very glad to report that, following a long period of difficulties, we now have our Brush business back on a solid basis.

You all very likely are familiar with some of our trouble. The main one has been to secure a sufficient quantity of reliable brushes. Industrial conditions in England and continued high prices made it impossible for us to get supply from them until well on in the summer of the year; but even yet prices on English goods are high. which makes them a poor profit making proposition for the druggist. In order to overcome this we have spent a good deal of time trying to get a brush that we could depend on and at a reasonable price. We are now confident that we have this, and in August of this year received our first shipment of brushes from the George R. Gibson Co., of New York. These brushes are made in Japan, but the factory is owned and administrated by the above firm. which assures us the uniform high quality that we must have. We are still buying from Kent & Sons, and in order to make up our quantity we are also buying from Spear & Son, London, England (a firm of equal standing to Kents). With an assured supply from these three makers we are enabled, commencing September 1st, 1921, to send out only hand-made, wire-drawn, bone-handle Hutax brushes. We have entirely discontinued sending out any more of the celluloid handle Japanese goods, and have had to scrap in the vicinity of three hundred gross, and will make some arrangements with Mr. Hargreaves about the disposition of these. During the year we also had a shipment of Canadian made Hutax brushes (about 50 gross in all. This was a trial order, given to the Dominion Toilet Brush Co., of Morrisburg. The makers didn't succeed in getting exactly what we wanted, however, owing to many difficulties, associated with any new enterprise. We would like, however, to see these matters straighten out, so that we might get a Canadian brush- correct design and at a fair price. Through special arrangement with Mr. Hargreaves, we supply brushes to School Boards for sale to school children, at a price which is below cost. This we do as a part of our educational work. I am glad to say that the demand for these is growing; the City of Toronto alone used 10,000 brushes during the past year.

During the year we have given a great deal of attention to our Hutax Tooth Paste. We have followed very closely the current literature on Dentifrices and Oral Hygiene, and have endeavoured to keep it up to the standard that we have set for it; the very best tooth paste it is possible to make. We have made several changes in the formula, which makes it slightly more abrasive, and still does not contain any hard, harmful grit. We have changed the flavor, which makes it more pleasing and we now have a dentifrice which is an efficient, harmless and scientifically prepared commodity.

During the war the wholesale selling price went up to \$2.65

per dozen, due largely to the increase in the price of tin tubes. I am glad to report that the price has now been changed to \$2.00 a dozen, which makes it a better profit producing article to the druggist, who sells it at twenty-five cents a tube. There is still a great difference of opinion among authorities as to whether a tooth paste should be acid or alkaline, but a careful analysis of all the writings will reveal that acid pastes as they are at present made up (containing a hard grit) are less desirable.

Our brush business in the United States has not made the progress that we anticipated, and this can largely be attributed to difficulties arising out of any new enterprise. In the first place we have made our contracts and arrangements on the belief that we were to sell only Kent's brushes. This was done on the strength of a five hundred gross order which they had accepted, but at the time of promised delivery they informed us that on account of an objection taken by their U.S. agents they couldn't ship us any brushes at all for sale in the United States. This left us "high and dry," without any supply of brushes over there. We tried every means possible outside of legal action to persuade them to change their decision, and at their (Kent's) expense, made a trip to New York to interview McKesson & Roberts, in hopes of inducing them to change their attitude, but without favorable results. Mr. Kent, Junior, who was on a trip in this country and the United States, did all he could to straighten out matters for us, but with equally unfavorable results. The matter finally ended in Kent's repudiating their accepted contract, and leaving us in a bad hole. The fact that we had made all our arrangements on having Kent's brushes and then failing to get them, did us a great deal of harm. Very shortly after the first of the year we entered into negotiations with the George R. Gibson Co., and secured the first shipment of their goods September 1st, and now we have in St. Louis a com plete stock of all sizes and grades.

A change in the personnel of the directorate of the Lambert Pharmacal Co. also has had the effect of slowing up our business, but following a conference held with their Board of Directors in St. Louis in October all of these matters have been adjusted and we now hope for good results from the sales down there. During this year we have received from there, in profits \$1,000,00.

Our educational work has been one of the most successful departments this year. During 1921 we sent out 11,000 pamphlets —3,000 on the "Care of the Teeth"; 3,000 on "Mouth and Health"; 2,500, Dr. Hartzell's article on "Pyorrhoea"; 2,500 "History and Development of our Association, with Charter and Bylaws." Besides this, we have had requests for and sent out over 100 outline

lectures, and three sets of lantern slides have been in use throughout the country more or less during the entire year, the demand for these at times being so heavy that we have had to limit the time down to a definite date and have the user return them next day, so as to ensure everybody having an equal chance at them.

Your Executive has during the year made up a new outline lecture which covers work to be done to school boards, teachers' institutes, high school students, mothers' clubs, and the public in general. We have also prepared a set of 40 slides to go with this lecture and it is proving very popular.

In April of this year we had Dr. Gies, Professor of Bio-Chemistry of Columbia University, come over and give an address before our Association on Diet and the Internal Secretions; Their Effect on Dentition. We sent invitations to this lecture to all dentists and physicians in the Province and the attendance was large. This address on the whole was most successful, not only from the point of attendance, but from the gratifying number of notes of appreciation we received following his lecture, from those who were in attendance.

The Department of Information which we maintain in connection with our Department of Dental Research appears to be a very necessary branch of our work, as during the year we have answered requests for information from 341 dentists. These requests cover all branches and phases of Dentistry—from the cost of equipment to the mode of procedure of the most technical major dental operation. We try in all cases to tell the dentist where he can procure the proper information that he wishes, and if he cannot procure it we make it a point to get it for him We have a great many letters of appreciation from dentists for this work, and it only tends to show how thirsty all members of the Profession are for information concerning the various subjects and methods of practice in Dentistry.

The Department of Dental Research work has gone steadily on and the report of that is appended to this report, which I will give separately.

Besides this work done from our office, your Dental Executive has personally given six addresses before Dental organizations from Ontario to the extreme east, more particularly giving reports of the work done in our Research Department. These have been very much appreciated, and are developing a knowledge along the lines of what we are doing and giving the dentist a chance to tell us what he would like to see us do.

At the request of the Dentists of Peterborough, your Dental Executive went to that City in October and gave an address before

members of the Board of Education and Health, City Council and school teachers on the need and advantages of Dental Clinics and Dental Inspection in the Public Schools. This was the start of a campaign by the dentists of Peterborough in this work, and recent reports from there show that excellent progress is being made.

Our moving picture films have been in constant use throughout the entire year, having only been in Toronto altogether three weeks out of the fifty-two. In that time they have been shown to thousands of people from Coast to Coast. They are at the present time in Nova Scotia, where I may say they are doing excellent work along the lines of Dental Hygiene. School charts and school cards have been in demand, but not as extensively as in previous years, as a good many of the school boards are well supplied with these.

#### CONVENTIONS

During 1921 your Dental Executive conducted an exhibition booth at the Ontario Dental Society Meeting. We also gave a report of the work done by the C. O. P. A. during the year and on one evening during their meeting we held a dinner meeting to which we invited every member of the Association. There were about 115 present and we had a most delightful time; some entertainment, a good dinner, and a report of the work we had done in our Dental Research Department. I would advise that this be a feature in every annual meeting of the Ontario Dental Society—and more particularly, that it be made an important feature of the Canadian Dental Association and the Ontario Dental Society at this year's meeting.

I also attended a meeting of the College of Dental Surgeons of the Province of Quebec, held at the Dental College, Montreal University, in October, and there gave them a report of our research work, as well as our educational and general work of the C. O. P. A. This, too, was a most delightful meeting. The members gave me an excellent hearing and manifested great interest in all branches of our work, and I feel that great good is accomplished at these meetings.

In July I attended a meeting of the New Brunswick Dental Society, in convention at Moncton, N. B., and here again gave a report of our Dental work and work done in the way of Dental Research. This work has also been given to groups of dentists in Prince Edward Island, in Nova Scotia, in British Columbia and Alberta, and I think our greatest good can be accomplished by talking to dentists personally in this way.

During the year the membership of our Association has been increased by 118 new names. I think each year we should endeavor to get as many new members as possible, until all—or nearly all—the dentists in the Dominion of Canada are members of our Association, so that each one will have a vital interest in our several departments and the progress of this work in general.

The financial part of my work will be taken up in consideration of our financial report, which you now have before you. I would like to impress upon you that our finances are entirely supplied from the sale of Hutax products, and this in turn maintains all our different departments. To improve our products has been our greatest effort, and we feel that we have done so during this year more than ever before, which should mean increased revenue, which in turn means increased effort to be of service to the dentists throughout the Dominion.

In regard to the coming year, I have great hopes that the general business depression, which has been so marked durin this past winter will be entirely gone, and that we are entering upon a year of greater prosperity—which means greater opportunity.

## Manitoba Dental Association

Geo. F. Bush, Winnipeg President's Address

Fellow members of the Manitoba Dental Association:-

During the past year our association has lost two of its members by death:-Drs. Pike and Laugheed. Dr. Pike although a comparatively new comer had a wide circle of friends. Dr. Laugheed who had been practising in the City of Winnipeg for a number of years was very widely liked and respected by a large number both in and out of the profession. I also record with regret the death of Mr. C. C. Sherriff, who was so well known to us all first as the proprietor of a dental laboratory and later as manager of the C. Ash and Sons supply house. I am sure we all feel a sense of personal loss in his death.

Dr. Harry R. Abbott passed away at his home in London Ont., last month. He was the first president of the Dominion Dental Council and held the post of first vice president for many years. His death will be a great loss to the Dominion Dental Council, he was always so sane and sound in his judgments, and he always worked for the good of the whole Dominion. I have ever looked upon him as one of our highest types of Canadian citizenship.

A number of chairs and other equipment have been ordered

and will be placed in the university, so that our practical examinations will hereafter be conducted in the University Building instead of in private offices, etc., as was done in the past.

Further equipment is also being arranged for, so as to make up a travelling outfit for the purpose of giving dental services to those living in more or less remote districts in the Province. It is proposed to work these clinics at the present time in connection with the medical clinics being sent out by the Red Cross. The idea being to establish a travelling van as soon as such can be managed.

You will I am sure agree with me in saying that this is a step in the right direction, and the Red Cross is doing a great work for the people in distant corners of our Province when it comes forward and arranges and finances these clinics.

Your board is still looking forward anxiously to the time when it will be possible to establish a dental college here, but, at the same time, if a college or department of the unversity is started, it should be done well, and, till things look up a little in the financial world, very little can be done in this direction. I feel however that the time may not be very far away when some public spirited citizens will come forward and help us.

And now, my friends, let me say that I have been a servant of this association for many, many years, and my relations with the other members of my profession have always been most cordial. You have been fortunate in having a secretary and registrar treasurer who have been untiring in their efforts. Let me bespeak the same cordial and sympathetic consideration for the incoming board as you have shown in the past.

Gentlemen, I thank you.

# The Regina Dental Society

To the Editor of The Leader,

Sir:—Two recent editorials in your paper, in which you attack the Regina Dental Society call for answer. The public are entitled to know the facts in order that they may not be further misled. We will not, however, enter into any newspaper controversy. This statement of fact will be all and sufficient. This is authorized by the Regina Dental Society at their meeting held Tuesday evening.

Many of your editorial statements are wholly wrong. You speak of "this close corporation," meaning the Dental College. Your ignorance can be measured when it is known that all dentists registered in Saskatchewan are by law members of the college and

that the University of Saskatchewan and not the Dental College determines who shall be registered. Whoever the university says shall be registered is, and the Dental College cannot object. Today 150 dentists are practising in Saskatchewan but some 500 are registered. In addition some 600 hold Dominion certificates. These can all come to Saskatchewan and in a few minutes start practises without reference to either university or college. Two thousand others can get Dominion certificates. With 1,100 already qualified to fill a demand for only 150 there is a sweet chance for a "close corporation." The people must choose between the university and the Regina Leader on these matters. When it comes to matters of education, honor and public welfare the public will find no difficulty in making the choice.

Two parallel, but differently treated cases, may be cited. Some four years ago the School Board decided to establish a dental clinic. They asked the assistance of the Regina Dental Society. Did they get it? For months the Regina dentists, turn about, did the work gratuitously. The anti-tuberculosis commission wanted a dental examination upon which would be based a valuable report on dental matters. Whom did they consult? The Regina Dental Society which embraces all but one dental firm in Regina? No. That one firm is selected. Presumably that report is for public use. By whom would the report be accepted? By the Leader? Yes. By the commission? Yes. By any university? No. No dental college in the world but what would repudiate it and every dental organization on earth would laugh at it. Of what value then is it? And they sought to put this over in the fair name of Saskatchewan. And they expected the Dental Society to acquiesce.

The reply of the secretary of the commission is "Had I known I would have requested your society to assign a dentist for that purpose." A courageous confession of error. Pleased we have a man like Captain Cook who has pluck enough to admit his error. Why then the abuse of the Leader? The Leader would do well to acquire some of Captain Cook's manliness.

Public bodies usually consult public bodies when an investigation is being made. The Dental College is a public body with well defined duties and authority. The manner in which these duties have been and are being discharged is open to investigation. Courted indeed. It will be found that the Red Cross and antituberculosis commission are not the only ones administered upon honor and in public interest.

The dental profession objects to the unethical practitioner for many reasons. Their business methods we consider immoral.

Their leading thought is to get money. They lure people into their offices by means we regard as questionable. They may give good service. They often do not. But they always get the money. They are stagnant. The many advances made in dental science must be credited solely to the ethical practitioner. Not one discovery or advance can be credited to the unethical. The latter live upon the brains of the former and give nothing in return. Today Canadian dentists are raising \$100,000 for dental research. And vast amounts are being spent in popular dental education. Eastern newspapers gladly accept educational articles and print them free for the benefit of their readers. Western newspapers, the Leader included, refuse. They charge at both ends and imagine they are righteous upholders of the public good. The unethical practitioner resorts, in many cases, to guaranteeing his work regardless of the fact that you cannot guarantee anything in the human body not even a moment's life. Natural laws are thus defied in an effort to get the money of the unwary.

Just why the Red Cross and their work was rung into the anti-tuberculosis case it is difficult to determine. The facts in this latter case are: The Red Cross decided to equip two dental cars. The Red Cross commissioner evidently undertook this work. He does not accuse himself of knowing anything about dentistry. It takes five years ordinarily to study dentistry. It is a highly technical profession. The commissioner, however, knew it all before hand. He ignored all and launched out into dentistry and trouble. The co-operation of the dental college was not asked. Quite willing to help. No opportunity. The commissioner wanted two dentists. Where did he go? Today between 30 and 40 Saskatchewan boys and young women are attending eastern colleges. A whole lot of our own boys and girls are recent graduates. Several Saskatchewan graduates are working on farms, teaching school, etc., in an effort to get money enough to buy a dental equipment to start practise. One of these is teaching school within fifteen miles of the Red Cross commissioner. Over 200 wrote on the Dominion council last June. Some 20 wrote on Scarth street, Regina, a few yards from the Red Cross commissioner's office. Did he offer them these positions? When there is anything going in the way of public office in Saskatchewan we hold that Saskatchewan boys and girls should at least have an equal chance. The Red Cross commissioner evidently ignored the Saskatchewan Dental College, the Dominion Dental Council (all business of the Dominion council is transacted from Regina) and he ignored Saskatchewan boys and girls. Are our sons and daughters to have a chance? Then he went to Ontario and got a man qualified there but not here. And The Leader says, "We refused permit even though he was a graduate of the College of Ontario." Go ask Premier Martin if he is agreeable to forego the right to determine who shall and who shall not be qualified in Saskatchewan, if Ontario shall decide for us. What about the B. N. A. Act? What about provincial rights? But they brought this man up. Why should he be singled out and favored? What about our schools now engaging dentists? They are just as important as the Red Cross. Shall they, too, be exempt from provincial law. A just law drawn in the interests of the public and administered without favor to anyone is the attitude taken by the Dental Society.

This young man brought up from Ontario attended the Royal College. Dozens of his class mates took the examination of the Dominion Council during the four years they all attended. He refused. They can all come here and in a few minutes commence practise. He can't. It is his own fault. He could have taken the examination last June. He didn't. He landed here a few days after. The Leader says the college resorted to red tape to delay his practise. The very opposite is the truth. The Dominion council provides that an applicant shall be examined in his own province. He could have been sent back to Ontario and told that is the law. Instead every accommodation was accorded him as he has and will again admit. In a few minutes after the final examiners report was received he was granted a temporary certificate and upon this he was at once licensed. Unless the Red Cross commissioner is willing to show a little more gratitude he may find that hereafter a strict compliance with the law will be insisted upon.

All dental organizations are willing to co-operate with all other public bodies. But they can't co-operate on the "If I had known" basis of the anti-tuberculosis commission. How can they co-operate in the performance of an act after the act has been performed without their knowledge. Nor can they co-operate in the face of the bitter antagonism and contempt of the Red Cross commissioner. The Red Cross might very well instruct their commissioner to cut private animosities out of public business. Nor will co-operation be advanced by such editorials as those appearing in The Leader.

Signed,
COMMITTEE OF THE REGINA DENTAL SOCIETY.
Regina, January 11, 1922.



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# **Dental Society Programmes**

To prepare a program for a dental meeting of the magnitude of those of the present day is no small undertaking. There are two general methods recognized from the study of a great number of programs. Each has its merits and each has its shortcomings.

If any great influence is to be exercised there must be a plan, a scheme or a slogan recognizable throughout every part of the meeting tending toward the ideal aimed at. This plan recognizes a method of focusing all things toward the one end to be attained. Persons only act their part in the attainment of the main goal. As in a great army the individual fills his niche and is satisfied.

The other plan is to collect a number of prominent essayists and clinitians, each skilled in his field and widely known throughout the dental world. His very name attracts large audiences. Here it is the personality and reputation of the essayist or clinitian that attracts and teaches the individual a number of methods or tricks or stunts. Such a program usually provides each member with a number of things which he can afterwards do himself, but such a program never gives a broad professional impetus because its effect is in too many directions and is personal or single in in-

fluence. The members do not go home with any outstanding feature in their minds which has influenced them.

If a program is too purposeful and does not recognize the influence of personality then it becomes a machine and consequently loses life, verility and soul.

A program made up of all stars is too much like all star aggregations in sports "everybody for himself and the devil for the hindermost." Each good in himself but no co-ordination and hence no combined result.

Making a program for a dental meeting is like any other organization, it is approached in terms of principles or in terms of persons depending upon the mental attitude of the powers that be. If a departmental store is to be organized one method is to first determine what plan of organization is to be followed and then choose the men suited to fill the places while the other is to choose a number of brilliant men first and trust the organization to follow.

Like many commercial enterprizes there are too many dental society programs which reveal neither purpose, organization nor results. A heterogeneous, conglomeration of essays, speeches, talks, clinics, demonstrations in every conceivable direction leading no where in particular and leaving no lasting impression. The result is defusion and confusion.

# Institute Meeting at Montreal

The meeting in Montreal of the American institute of dental teachers brought to Canada the most influential dental organization in existence. It has no legislative or mandatory powers; it is an open forum for the discussion of what, when, where and how to teach dental students. There was a general theme running through all the program and at the same time enough other matter to lend spice to what many said was the best of the twenty-nine meetings of the institute. The program was directed toward determining what a dental student should be taught so he would be the better able to prevent dental diseases. This included three special addresses of unusual significance, to dentistry today when the question is being asked, whether are we tending toward more mechanics, more science or more art. Sir Robert Falconer, President of the University of Toronto, addressed himself to the subject "What should a dental student be taught so that he would be able to appreciate his correct relations towards things in life, social, economic, professional, financial and religious." This address following close upon that of president Millbury which discussed

the foundational purposes of dentistry set a standard of discussion and thought in the program which will have an influence wherever dentistry is taught. At the banquet the Rector of Montreal University made plain the high standards of educational requirements demanded by the authorities in Dentistry of the Province of Quebec and the University. After 1927 a B. A. Degree will be demanded of students before admission to the study of dentistry. Sir Arthur Currie, Principal of McGill, made a clear definition of what an education is and what a university stands for.

The Dental teachers of America will long remember the Montreal meeting as one where there were many social functions, excellent addresses and discussions and above all a reconciliation of several divergent views in dental education and organization. A council of the dental institute was organized on broad catholic plans which will it is hoped finally take the place of the University Faculties Association and the National Faculties Association. The Dental Educational Council of America was in session for several days the same week. The American College of Dentists also held a meeting in Montreal during the latter days of the week. The next annual meeting of the Institute will be held in Omaha, Nebraska on or about the 22nd. of January 1923, under the presidency of A. H. Hipple, Dean of the dental school of that city.

An editorial in the Brandon Sun essays to discuss advertising by professional men. The editorial says the so called ethics never do enter into the professions. Such talk is mere camouflage or in other words all "bosh." Among the effusions is this sentence which seems significant. "It is illogical to brand as incompetent anybody who is so sure of his worth in his profession as to boldly tell the people so." The supposition is that if you have nerve enough to tell people you are competent then you are thereby made competent. What about the motive for advertising abroad one's competency. It brings advantage as well when untrue as when true. The fact is the recipient of dental service cannot at once or even remotely determine whether he got good or bad advice or service. This makes it possible to attract and deceive by advertising. The very opposite of what the editorial says is true and the writer knows it himself. If a man boldly, as he says, proclaims his own merits or praises his own virtues there isn't one thoughtful person in a thousand would think he had either. There is modesty in honest educated people who are not in asylums for the insane. Professional attainment is a personal virtue which is readily recognized by those having it and could never be found in the man who blatantly tells all comers that he has more refined tastes and greater

skill than his neighbors. No, refined people do not boldly tell the public of their refinement or virtues. If others cannot find it out it is fair to presume it isn't there.

Of course if a dentist is doing mechanical jobs for money then we have nothing to say only stick to his job and don't ask to associate with professional people as such.

A pleasant feature of the opening ceremonies of the New Dental Clinic at Montreal General Hospital was the presentation to Dr. J. S. Ibbitson of a walking cane suitably engraved in recognition of his part in founding the clinic in the Montreal Hospital.

Montreal University under the guidance of the Faculty of Dentistry entertained the visiting executive heads of the Universities at luncheon at the University Club.

The Carnegie Foundation has undertaken a survey of dental Education throughout the world. Twenty-six dental schools of America have already been investigated. The plan is to send four or five experienced dental teachers to spend two or three days at each school studying the educational requirements, the teaching plant, the teachers and the pupils. It is expected that a report will be made after due time, which will indicate what the prevailing plans of organization are and what methods of instruction are best adapted to dental teaching and perhaps some form of assistance to needy institutions in some localities. McGill, Montreal and Dalhousie Universities have been inspected, Toronto and Edmonton will be visited later this term.

The unemployed unmarried women of Regina are asking the dentists who may have married women employed in their offices to discharge them.

Dr. Earl McFeeters, a graduate of the Royal College of Dental Surgeons, located in Hespeler, Ont., was visiting friends in Toronto during the last week of January, and not feeling well called at the Dental College suffering from a severe heart attack. He was put to rest at once and given restorations but died within a half hour. The doctor had several attacks before but of much less severity.

The Calgary Albertan in reporting the meeting of the Institute of dental teachers recently held in Montreal made some trenchant remarks in comparing the progress or open-mindedness of the dental profession with medicine. The report ended with this sentence, "A similar zeal in other departments of scientific healing would go far to restore a public confidence in medical practice which is visibly declining every decade."

## Associated Anesthetists

American Association of Anesthetists; Pacific Association of Anesthetists; New York Society of Anesthetists; Canadian Society of Anesthetists; Interstate Association of Anesthetists; Midwestern Association of Anesthetists; National Anethesia Research Society.

A Bust of Morton For The Hall of Fame— Send Your Contribution Now.

In the election of Dr. Wm. T. G. Morton to the Hall of Fame the allied professions of medicine and dentistry have been singularly honored. By their overwhelming vote the Electors have also evidenced the appreciation of the public at large for the beneficence of anesthesia.

Recently at the annual dinner of the American Anesthetists in Boston, during A.M.A. Week, Dr. S. Adolphus Knopf, a leading advocate for the honoring of Morton, said it would be a proud privilege for the Associated Anesthetists to place a bronze bust of Morton in the niche assigned him by the Electors. This is to be done on October 16, in celebration of the Diamond Jubilee Anniversary of Morton's First Public Demonstration of Ether Anesthesia.

The Associated Anesthetists, as well as other prominent leaders of the allied professions, are therefore urging all those interested to make a substantial contribution for this purpose.

Kindly send your cheque or money order at once to
F. H. McMechan, M.D., Secretary-Treasurer,
Associated Anesthetists,
Lake Shore Road, Avon Lake, Ohio.

A newspaper clipping from Brooks, Alta., says that dental vans have been successfully used in Ontario and upon this ground they are being recommended to the Board of Health of Manitoba. We haven't seen them so far.

In a series of articles from the Surgical department of the Toronto General Hospital on the subject of disease of the gall bladder is found this statement. "The X-Ray plates in suspected cases of gall stones at present have not proven of any great service so far as we are personally concerned." Machinery will always be of great assistance but never can take the place of clinical observation in making a diagnosis.

# Obituary

## Dr. Harry R. Abbott

By Chester Abbott, D.D.S., L.D.S., London

Died at Victoria Hospital, London, Ontario, December twentieth, nineteen hundred and twenty-one, in his sixty-seventh year, after several months illness, Harry Randolph Abbott D. D. S. M. D. S.

Dr. Abbott was born in the city of London, Ontario, the youngest son of Alexander S. and Dorinda Abbott. He received his early education at the public and grammar schools of the city. On leaving school he entered the office of Dr. Henry Nelles with whom he was associated until the time of his graduation from the Royal College of Dental Surgeons. He commenced the practice of his chosen profession in the town of Exeter, Ontario, where he remained for several years. In eighteen hundred and seventynine he removed to London where he built up a large and lucrative practice, which he continued until the time of his taking down with the malady which ended in his death.

Dr. Abbott was in practice some forty-six years and was known throughout the dental profession and a large clientele as a skilful and intelligent practitioner. His influence and leadership in all activities relating to his profession were profound and far reaching. His pleasing and affable personality, his tireless energy and spirit, his rightmindedness, were always enlisted in every effort towards professional progress in dentistry. His keen sense of personal honor was practically reflected in the standards by which his professional life was gaged.

Dr. Abbott had for some twenty-five successive years represented his district on the Board of Directors of the Ontario Dental College and had held almost every office within the gift of the board. He was a member and past president of the Dominion Dental Council, an institution which he was largely instrumental in forming and which has been of inestimable benefit to the profession. He was a very active member of the Ontario Dental Society and also the London Dental Society. His activities were legion—for many years he was the commanding officer of the First Huzzars. During the late war he offered his services to his country, but, owing to age limitations, he confined his war work largely to recruiting. His regiment sent many men to the front, many gaining distinguished mention. Some few years ago he retired from the active militia with the honorary rank of Lieutenant-Colonel. At the time of his death he was the president of

the Old Boys Association of the city. In Masonic Circles he had taken a very active part for many years, being especially interested in the work of Mocha Lodge of which he was a past potentate. In the early days of his career he was an ardent and enthusiastic lover of horses and was largely responsible for the formation of the London Hunt and Country Club, taking a very active and enthusiastic part in the Meets for many years.

The passing of Harry R. Abbott removes an outstanding figure from the active working forces that are making for a higher conception of the possibilities of dentistry, and his loss creates a void that cannot easily be filled. To his host of friends his death comes as a personal grief, one more of those sorrows which, though in the scheme of life they are inevitable, are none the less inscrutable.

Dr. Abbott was unmarried, two brothers and one sister survive him. His remains were interred, under Masonic auspices, in Mount Pleasant Cemetery, London, December the twenty-fourth, nineteen hundred and twenty-one.

#### PERSONAL TRIBUTES

Since my first meeting with Dr. Harry Abbott, I entertained the warmest admiration for him.

His happy engaging smile at first attracted me, but I soon learned that this was but an outward and visible manifestation of the man's whole nature.

He was so dependable—so impartial, always seeing the other man's viewpoint—so just in his rulings—so unselfish and ready to sacrifice his own wishes to the wishes of others, that unconsciously one was always stimulated to imitate him.

I recall one instance of his unselfishness. He was the choice of a committee of his confreres for office, the election to which being considered the greatest compliment which could be paid a member of the Profession, but it was his own wish to stand aside in order that another whom he considered more deserving might receive recognition. You cannot but love a man who behaves that way.

His membership in the Dominion Dental Council, from the organization of that body until his untimely death terminated his connection with it, was illustrative of the esteem in which he was held. At every meeting of this body he was elected either President or a Vice-President, a record which it is safe to say will stand for all time.

There was only one Harry Abbott, and Harry Abbott will be sadly missed.

I am selfish enough to wish that his mantle of unselfishness might fall on me.

Jas. M. Magee.

42 Wellington Row St. John, N. B., Jan. 12th., 1922.

Dr. Harry R. Abbott is to be with us no more. It is difficult to realize it. For seventeen years I have counted him a companion—and honored myself in so doing—in official dentistry. Not once during that long period did I regret my companionship. Many a time I was glad to know that we had one on our Dominion Council as true to friendship, as true to form, as firm in conviction and as steadfast in his devotion to dental ideals as Dr. Abbott.

From his ideal he never wavered. The highest possible standard for the Dental profession was his goal and to win that goal was seemingly his one ambition and to that end all his energies

were applied.

Never during the whole period of his association with the Dominion Dental Council both as President of it and as a member for seventeen years, did he advocate or support a single act retrogressive, or which would lower the Dental standard. The opposite always. As President of the Council he was always prompt in giving instruction or decision. His ruling, given without hesitation, clearly indicated a thorough grasp of the business in hand and a knowledge of the foundation principles of justice upon which all rulings should be founded. His punctuality made possible the transaction of business on a business basis and go to prove how essential sound business principles are to a successful professional career.

His life was a success. He succeeded more for others than for himself. His success in official dentistry, which is where I knew him best, has benefitted many and will yet benefit many more. He has erected his own monument. It exists in the hearts of all who knew him and is wrapped up in his achievements which will benefit Canadian Dentistry for many years to come.

Regina, Sask.,

W. D. Cowan, Secretary D.D.C.

In the passing of Dr. Harry Abbott, the Dental Profession of Canada has lost one of its oldest and best known members; one who always took an active part in any movement for its betterment; one who considered it an honor to belong to the profession and was himself an honor to it.

The Dominion Dental Council lost one, who, from its beginning,

believed firmly in its aims and objects, one who worked early and late for its advancement, and for its best interests. A member of the Council from its inception, he always did just that little more than the measure of his duty, that marks the real friend and believer in a cause. He would in all matters see and sympathize with the other side while holding fast to the ideal of the right as he saw it.

Probably in no circle of professional friends will Dr. Abbott be missed to so great an extent, as by those, who for the past seventeen years have met regularly with him in the D. D. C.; and for them its meetings will always lack something in his absence. Edmonton, Jan. 20, 1922.

H. F. Whittaker,

President of the Canadian Dental Association and the Dominion Dental Council.

Dalhousie University, Halifax, N. S.

The passing of Dr. Harry Abbott came to us in the East as a great surprise. He was a choice spirit in very many ways, whom to know was to regard very highly

My acquaintance with him began with the organization of the Dominion Dental Council. We grew more and more intimate as the years passed.

We traveled together to and from the Winnipeg Convention of the Canadian Dental Association and lived together while there, and the intimacy increased my regard.

He was always jealous of the interest of the dental profession in his own province and championed them right loyally, but was always broad enough to see the view point of the rest of the Dominion, and could always be counted upon as fair and just.

We mourn our good friend, Council nor Association will seem quite the same without Harry.

Frank Woodbury

Halifax N. S, Dec. 31st., 1921.

I have learned with great surprise and regret the news of the death of my dear old friend, Doctor Harry Abbott.

I became acquainted with him in Montreal, in 1902, when the Canadian Dental Association was established, and I immediately liked him as was the case with all those who came into contact with him because he had a great charm of manner, taking the most cheerful and optimistic view of things.

I met him many times since then, as he was a faithful follower

of all dental conventions, being a great lover and admirer of his profession.

Ethical practitioner, greatly esteemed by his confreres who recognized his high qualities, he well deserved the honors bestowed upon him, such as president of the Royal College of Dental Surgeons of Ontario, and president of the Dominion Dental Council of Canada.

His death will be deeply regretted by all those who knew him and the profession is suffering a great loss.

Montreal, Jan. 19, 1922

Eudore Pubeau, D.D.S. Dean.

A rude shock it is when one whom we have known for years, with whom we have worked and enjoyed social intercourse, whom we have learned to esteem highly because of intrinsic worth—a rude shock indeed when such a one passes into the beyond.

About the first of December I, was passing the corner in the City of London which for so many years I was accustomed to associate with the name of my friend Dr. H. R. Abbott. Instinctively my feet turned to his office. I was surprised, no shocked, when the young lady in his office informed me that "Dr. Abbott was in the hospital, had been ill for nine or ten weeks," but, she added, he was "now on the way to recovery." Then some weeks later the morning paper announced his death. It hardly seems possible that genial, vivacious, lovable, hard-working "Harry" has left us.

It is hard indeed for us to learn that death is an incident of life.

Dr. Abbott's death comes home to me with peculiar force for he it was who first proposed my name as a member of the Faculty of the Royal College of Dentistry. That single act probably changed the whole course of my life. Is it to be wondered at then that I feel keenly a personal loss in his death?

From my first meeting with him, now over twenty years ago, I have found him a faithful friend, a wise counsellor, a genial companion and a conscientious fellow-worker.

Ontario has lost a good citizen, the Board—a member who gave his best to the work of the college and the profession, a man who for years, by every legitimate means, strove to raise the standard of the profession to the ideal which he carried out in his own private life and practice. Canadian Dentistry is poorer today because of his death.

Taking a leaf from his Life's lesson may we all strive to carry

on so that when the summons comes to us as it has come to him, we may have nothing to regret.

A. W. Thornton.

Harry Randolph Abbott has in the Infinite Wisdom of God been taken from us. Ripe in years, honest, fearless, straightforward, he was a man of exceptional character who served well in he development and progress of his profession, in which he attained the very highest form of recognition in the gift of his colleagues.

He enjoyed life, he loved his fellows, he helped to elevate the profession he adorned and his inestimable qualities of head and heart endeared him to all who knew him.

"Nothing in his life
Became him like the leaving it, he died
As one that had been studied in his death
To throw away the dearest thing he owned—
As if it were a careless trifle."
We shall not soon look on his like again.

Hamilton, Ont.

Yours sincerely,
P. C. Moore,
President Ontario Dental Society.

In the passing of Dr. Abbott, a tried and trusted Administrator of the Board of Directors and the School of Dentistry, and a conscientious practitioner has gone. Being almost the last connecting link with the early days of dental education in Ontario, he brought to his official duties a wonderful store of knowledge, indeed his knowledge of the workings of the Board of Directors for over twenty years was a great asset to the other members, and in this respect was looked upon as the Dean of the Board. He served as President of the Board, Chairman of very important Committees and in all instances performed his duties with exactness and precision.

We will miss his active and alert mind, his sound and safe judgment, and his happy, genial companionship.

When we laid his mortal remains away in beautiful Mount Pleasant Cemetery at London, we bade a long and lasting farewell to a man who loved life, loved his profession and loved his friends.

Toronto "Requiescat in pace."

M. A. Morrison,
President, Board of Directors, R. C. D. S.

I met the late Dr. Abbott in 1904, and have always looked upon him as one of my best and most trusted friends. Honorable to the last degree, no man ever had a truer friend. Ever since that time as one of the executive of the Dominion Dental Council he has through his sane and sound judgment done service of inestimable value to that body: living in the central Province of the Dominion, east and west were alike to him his whole thought being for the betterment of our profession throughout the length and breadth of Canada.

In 1905 at the meeting of the D. D. C., for organization, he and myself were appointed a committee to draft the wording of the D. D. C. certificate. The wording as it stands today is largely his work, and those holding a D. D. C., certificate have in their possession a lasting memorial of the great work he has done for Canadian dentistry.

Winnipeg, Man.

George F. Bush

In the removal of Dr. H. R. Abbott to a higher sphere the profession has lost one of its most enthusiastic and progressive members. It has been my privilege to be associated with him for over twenty years in connection with the Board of Directors of the Royal College of Dental Surgeons.

He was always a very ardent supporter of any effort made for the advancement of the profession and in all matters before the Board, his one aim was to make the School of Dentistry so efficient that it would be second to none on this Continent. He was always the friend of the student and has many times remarked that one of the hardest things he ever had to do was to turn down a student in Examinations and he always considered all possible circumstances for leniency.

With his cheery countenance, hearty salutations and happy manner, it was impossible for one to be long acquainted with him and call him "Doctor Abbott"; to these, he was always "Harry". In the years to come, his visits to the College will be sadly missed by his fellow Directors and by the members of the staff.

Toronto,

W. E. Willmott.

FOR SALE—Dental practice, fully equipped, modern office. For further particulars apply to H. MacCrostie, Westaskiwin, Alta.

FOR SALE—Dental practice, fully equipped office. A good opportunity. Apply to Carl E. Klotz, St. Catharines, Ont.

FOR SALE—Dental practice, with or without equipment, location good, in a prosperous town. For further particulars apply to Dr. W. J. McL. Dolson, Cobalt, Ont.

# Dominion Dental Journal

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No. 3

## **ORIGINAL COMMUNICATIONS**

# Maxillary Cysts

Fulton Risdon, M.B., D.D.S.

Cysts of the jaws are seldom reported in medical literature, consequently they are supposed to be rare. This is not a fact, especially if all cavities lined by a membrane and distended by a fluid be considered true cysts. Further, the meagre literature is so confusing that one is forced to believe that the pathology of these cysts is not clear. Sir John Bland Sutton has written more extensively than most general surgeons on this condition, and his classification is largely accepted with a few modifications. We believe that his classification can be simplified, but as yet we have not sufficient proof for this statement. At any rate it is agreed by most writers that these cysts are conveniently divided into two classes, namely, those suggesting their etiology from Embryonic Rest, and those due to Preceding Infection. It will be my purpose to exclude a l other cysts from our consideration in this paper, and to attempt to describe these cysts which are frequently seen.

The classification of the Embryonal or Cell Rest type I intend to follow is to be found in a report on Odontomes by Gabell, James and Payne, published by John Bale, Sons and Danielsson Ltd., London. It is as follows:—

1. Epithelial Odontomes.—Where the abnormal development takes place in the dental epithelium alone—

Multilocular Cysts.

Dentigerous Cysts.

Dental Cysts.

- 2. Composite Odontomes.—Where the abnormal development takes place primarily in the dental epithelium, and secondly in the dental papilla, and may occur in the follicle also.
- (a) Where the abnormal development of the dental epithelium is such, that the formation of numerous irregular dentine papillae results, which are calcified in one mass or sporadically:—

Comp ex Composite Odontomes. Compound Composite Odontomes.

b. Where the abnormal development of the dental epithelium is such, that the formation of two or more tooth-like dentine papillae results and are calcified as one mass:—

Geminated Composite Odontomes. Gestant Composite Odontomes.

Enamel Nodules.

Where the abnormal development of the dental epithelium is such, that the formation of a dilated portion of the dentine papilla results and is calcified as one mass:—

Dilated Composite Odontomes.

3. Connective Tissue Odontomes.- Where the abnormal development takes place in the dental tissues of mesoblastic origin alone—

Fibrous Odontomes.

Cementomes.

So much for the Cell Rest type. As to those where a preceding infection is most likely the Etiologica factor, there is only one class, i. e.,—

Inflammatory Cyst of Dental Origin.

These are called by some writers Radicular Cysts, but this is confusing as, according to most classifications, it suggests Cell Rests.

#### ETIOLOGY

The cause under ying the development of the Cell Rest type is most interesting. It is suggested by Malassez that these cysts are due to an inclusion of some of the paradental epithelial debris, such as arrested cells from the epithelial cord, papillae or follicles. The enamel is formed owing to action of the epithelial ce'ls, and the dentine and the cementum arise from the papillae and follicle. Hopewell-Smith's theory suggests that the excessive secretion of the fluid takes place between the enamel and the follicle, which, accumulating, distends the space and produces a cyst.

The etiology of the Infective Class is that of chronic irritation resulting in the formation of a connective tissue capsule encysting the infected area.

The pathology of the first class is that the cyst wall is formed of connective tissue lined by epithelium, general y co'umnar, with or without tooth debris, such as partly formed teeth or denticles.

The second class, which is more common, has this pathological sequence, the death of the infected pulp, an inflammatory reaction resulting in a granuloma with a fibrous capsule, and, owing to the pressure of the fluid of the cyst, absorption of bone. These are seen most frequently in the maxilla, and about equally in both sexes.

#### DIAGNOSIS

As a rule the patient complains of nothing abnormal except perhaps a slight swelling which has been noticed for some years, or a swelling suddenly appearing over the cheek and increasing very slowly, taking years to attain the size of an egg. In some cases, the extraction of a tooth reveals the condition, showing a brownish fluid escaping from the socket.

The diagnosis depends largely on the roentgenogram; for the inflammatory cyst around the apices of the teeth the dental film is of value, but if the cyst is of large size the stereoscopic plates are more reliable. May I stress this point and urge the most careful study of a well-taken series of p ates, and in doing so may I suggest that two positions be taken as a routine,—the antero-posterior and the lateral sterograph. I believe that the one-plate view, even in two positions, is almost useless, and that all head work should be done stereoscopically.

As to differential diagnosis -of course one must rule out malignancy if possible, and if suspicious of Lues, a Wassermann should be done. Osteoma, fibroma, adenoma, adamantinoma, chondroma. etc., are to be considered. The stereoscopic plates will help in the diagnosis from antral disease and will put one on guard when considering a multilocular antrum. If it is a cyst, very likely a tooth will be enclosed in the cyst membrane, or the projection of a tooth root into a unolocular space will be observed. Further, if the cyst is infected, it is not likely to give the pain of an acutely infected antrum. and no discharge is to be noticed in the nose in the middle meatus. The nasal signs of a cyst usually are, rounded swelling in the floor of the nose or a small inferior turbinate crowded against the septum. Further, when the membrane which is removed at the time of the operation is examined, there should be no doubt as to whether you are dealing with a cyst complicating the antrum, or the so-called multilocular antrum. Gruber reports that 2.5% of all antra are multilocular, but this percentage is too liberal. Zuckerhandl and Hajek report one each where the anterior half was infected and the posterior clear. The examination of excised membrane in the case of the multilocular antrum would reveal a ciliated columnar epithelium; and of the infected cyst just scar tissue forming the entire capsule.

The treatment of these cysts consists in removal of their contents including the sack, and allowing the depression to fill from the bottom. I have found that dental compound or hard wax (sterile) is better to keep patent the mouth of the wound than gauze packing. Further, I cannot see the rationale of opening these cysts complicating antral disease into the antrum and draining into the

nose even where they assume considerable size, unless the anterior antral wall has been absorbed or the antrum infected. You will find that your incision does not close as it does in the operation for a radical antrum, because the perlosteum covering the cyst has been largely lost.

REPORT OF CASES

### 1. Mr. M. S.:—

Complaint: Swelling of face.

Duration: -Four years. Increased considerably this last year.

Past Illness: Children's diseases.

Present Illness: Dates to four years ago, - gradual swelling of

face,—no pain.

Examination: Face,—left side over antrum swollen size of walnut. No redness or oedema, etc. Left lateral tooth missing,—no history of any eruption in it. Says he had temporary laterals which were extracted eight years ago. Left central longer than right central pressure symptom. Slight pain on pressure, and anterior wall bends slightly.

Nose,—Negative.

X-Rays, show fully erupted tooth lying horizontally, also bony outline of cysts.

Diagnosis: Dentigerous Cyst.

Pathological Report: Dentigerous Cyst.

## 2. Mrs. H. F.—

Complaint: (1) Swelling of left cheek.

(2) No pain or discharge.

Duration: Four years. -appeared suddenly, not increased much since then.

History: Appeared four years ago, no change since then,—appetite good,—no loss of weight,—no pain.

Examination: Skin moves freely over a growth size of hen's egg. No glandular involvement. Growth soft on pressure but painless. Growth fixed.

X-Rays: Showed complete outline of Cyst, absorption of anterior bony wall, small antrum crowded posteriorly.

Diagnosis: Dental Cyst.

Pathological Report: Cyst size of plum. Opened when received, shows plasma cell and fibroblasts. Simple Cyst with subacute inflammatory reaction.

The Dominion Dental Journal will publish an exclusive tribute to the late Dr. Frank Woodbury who died only a few weeks ago. Dr. Woodbury was for many years an Associate Editor of the Journal.

# The Foundation and the Superstructure

A. W. Thornton, D.D.S., L.D.S., Dean Dental Faculty, McGill University, Montreal, Quebec

## Read Before Toronto Dental Society, March, 1922

I listened a day or two ago to a gentleman from Rochester who was giving an address on "Mental Disarmament." He pictured the world's condition, when, not only National Disarmament, as we understand that question, would be an accomplished fact, but when Mental Disarmament also should rid the world of many of its prejudices, its misunderstandings, and its fixed animosities.

He used this significant sentence in connection with the social fabric which this Mental Disarmament was to bring about in this old world, rent as it is at the present time with unrest. "In every building which is to serve a useful purpose the superstructure must be in proportion to the substructure." Will you permit me to define his words, in order that we may have a common starting point?

Definition of Foundation:—The basis of a building; the solid ground on which a structure rests. That part of a structure which is below the surface of the ground. The principles, basis, grounds or reasons on which an opinion, notion, or belief, is founded.

Superstructure:—A structure or building erected on something else, especially the building raised on a foundation, as distinguished from the foundation itself. This last is perhaps the one which will suit us best.

I have chosen the title of my paper, not because it is in any way closely related to our professional activities, but rather to draw attention, in a somewhat diagramatic manner, to the beginning, the present attainments, and the future possibilities of the profession or calling to which we belong, and for which we exercise a fondness, more or less pronounced.

When I say that I wish to draw attention to the beginning of Dentistry, I have no intention of going into the evidence of a very early knowledge of some forms of Dental operations, as practised by prehistoric man, or of the evidences of Dental restorations, obtained from the pyramids of Egypt or the catacombs of Rome. These things may perhaps, be properly referred to as the foundations, the underground part, but I wish to speak more particularly of the lower stories of the superstructure, the portion in which we of the present day have had some part.

There are "perhaps, none of the men here at present, who belong to the Ancient and honograble past. But there are many here who have personal knowledge of the days of indentures and preceptors. What of that part of the superstructure built during the last twenty-five years of preceptor training. I am not one of the school of weeping prophets who believe that "the former days were better than the latter," but there is much to be said in favor of a system of office training, under a preceptor.

Those of us who have been in Dental Educational work for any length of time, know full well that many of the young men and women who receive our degrees and start in practice for themselves, are not by any means as well equipped as they might be, either to render efficient service to patients, or to grapple with the financial problems or professional difficulties which they must of necessity encounter.

Association, in the early years of practice, with an older man, with experience in practice as well as in commercial affairs, has been of inestimable value to hundreds of men who entered the profession twenty-five or thirty years ago.

I know, as well as any of you know, the many drawbacks of the old indenture system, for there were preceptors of every possible standard, high and low, honest and dishonest, capable and incapable, good, bad and indifferent; but the difficulty to-day is that we send out our graduates without any practical knowledge of office management, professional ethics, or obligation to patients.

I believe that in all our schools much could be done to remedy

this defect in professional training.

I am not unmindful of the fact that lectures are given in all our schools in Ethics, History and in Economics. I have nothing but praise for such training. But I know too that first hand knowledge of a profitable investment in a house, or a piece of farm land in a good location, or some safe interest bearing bonds, first hand knowledge I say, personal relationship with some one fortunate enough to have become "wise in these ways" would be a great help to many of our graduates who go out to become the "prey" of financial vultures.

In addition to the help which might be given along business lines, think of the tremendous advantages to a young man to come in contact with a man of wisdom and experience, and to learn by personal observation, the methods adopted in meeting patients, in dealing with the difficulties which are inseparable from active practice, and the personality, which after all plays almost as great a part in successful practice as the fundamental knowledge peculiar to our professional calling.

Have I perhaps wandered somewhat far afield. My only excuse is that, I have seen so many of our graduates, proud of their newly acquired degree, but hopelessly weak in many of the things that go to make up what we are pleased to term," success in life," and may

I make this further statement, but illy prepared to render the kind of service, which a suffering people has a right to expect.

But to return to our lower story of the superstructure of dentistry. What were our schools teaching thirty years ago, and what were our men practising? Well, I can say with all confidence that the bill of fare in the colleges of that date, was not calculated to produce mental dyspepsia.

If the students of to-day could peruse the curriculum of the colleges of thirty years ago, they might perhaps be inclined to laugh. But if we who are teaching and practising to-day feel any tendency to cultivate a feeling of superiority over those men at whose feet we sat, let us not forget that "there were giants in those days."

If we have knowledge of which they were ignorant, let us bear in mind that the men of former years, by unremitting toil, laid the foundation of that knowledge. If we to-day have an enlarged vision it is because we are standing on the shoulders of such men as; J. B. Willmott, Luke Tesky, "God's friend Theophilus," W. T. Stuart, Black and Garretson, on Guilford and Stellwagen, Darby and Perry and Land, and scores of others whose names are household words in Dentistry.

These men sowed and we have reaped. They have labored, and we have entered into their labor.

What did we in those days learn? We learned to extract teeth more or less efficiently. We learned to fill teeth with alloy. But to-day we have alloys incomparably better because G. V. Black gave his mind to the problem of the "flow," or change, which took place in these fillings after insertion.

We learned to insert fillings of cohesive gold foil, and to the everlasting detriment of dentistry, it is now becoming almost a lost art.

We learned something of cavity preparation, and in that field also, Black has since laid foundations in eternal principles.

We learned something of root canal work, we have since learned that we were then merely groping in darkness. We learned to make artificial dentures, and perhaps nothing in our realm has progressed so rapidly, and changed so completely in the past twenty-five years, as Dental Prosthesis.

There are men in this room who never listened to a lecture in Crown and Bridge work during their entire college course. Some of us now wonder if they missed very much. But crown and bridge work has not been an unmixed evil. The advent of Crown and Bridge work taught the public at least one good lesson, viz; that some forms of dental work must of necessity be adequately paid for. Unfortunately, however, much of the crown and bridge work from the days of Richmond until the present, would be dear at any

price. I am inclined to look upon the rise and fall of Crown and Bridge work, as it has been practised in all too great a majority of cases, as the blackest page in the history of Dentistry. Perhaps however, it was necessary, in the evolution which has brought us to our present day recognition.

I quite realize that when I come to speak of Orthodontia, I must take off my shoes, for I am standing on holy ground. But we

have learned that;—

"All earth is crammed with Heaven, And every common bush afire with God; But only those who seek take off their shoes, The rest sit around it and eat blackberries."

The development of Orthodontia as a part of Dentistry has meant untold blessing to a very limited number of persons. Perhaps no part of Dentistry has fallen so far short of its wonderful possibilities as the practise of Orthodontia. Many features enter into the results thus far attained, by this much discussed and many sided question.

The time required to treat a case, demands a fee which places treatment of malocclusion beyond the reach of any but the wealthier classes. To-day Orthodontia is in the class with the eight passenger Packard, Cadillac Limousine, and Pierce Arrow Sport Car. What we desire is a "Ford Service" that will take us where we want to go without the attendant frills.

At the recent meeting of the American Institute of Dental Teachers, this subject was very freely and fully discussed, and as a result of this, I believe that the near future will witness a very marked change in the teaching necessary to fit our students to do a very considerable amount of this work.

I can see no reason why our students should not, when they graduate from our colleges, be as well qualified to practise Orthodontia as they are to make Prosthetic Restorations, or to do credit-

able work along operative lines.

No special kind or amount of brains is necessary in the one case or in the other. I have absolutely no sympathy with the statement of a very prominent American Orthodontist, when he says that "Orthodontia is more closely related to Science or to General Medicine than it is to Dentistry." Nor have I any sympathy with the further statement by the same prominent Orthodontist, that "the correction of Dental irregularities should never be attempted in the Clinic of a Dental School, and that the greater part of the work thus attempted is a criminal procedure."

It is a well known axiom in business that a Universal demand or need creates a supply. The need of honest Orthodontic practise is known by every man in the Dental Profession to-day. I need not, before this audience, lay any stress upon the terrible misfortunes attendant upon mal-occlusion, contracted nares, enlarged tonsils, sunken chests, the usual concomitants of those conditions which demand intelligent treatment such as is now being given to an extremely limited number of persons.

This is a question with which the Dentists of to-day must grapple, if the superstructure which we are raising is to be worthy of the foundation which was laid by the worthy men of the past.

It is not a question of easy solution, but the difficulties to be overcome are not insuperable, and the end sought is worthy of the efforts of the best men in the Profession.

Am I still treading on dangerous ground as I pass from the holy ground of Orthodontia to the "Sanctum Sanctorum" of Pyorrhea or periclasia.

What do we know of this "disease," "malady," "condition," or "manifestation?" The name matters not, we all know what is meant. Is it due to a specific organism? Is it due to an inherited tendency? May so-called pyorrhea, by metastatic action, produce a pathological condition in some part of the body remote from the mouth and teeth? Is it any way responsible for so-called rheumatoid conditions and is there a direct relationship between pyorrhea and joint lesions, and valvular lesions of the heart?

What medicinal agents have a curative effect in the treatment of this lesion? Is it in some way related to dietics? Will it yield to treatment of a purely mechanical nature? Is the administration of internal medicine desirable? What are we to teach present day students in regard to this very prevalent condition?

My reasons for asking these questions may be very briefly stated. Within the last few weeks I have seen a number of patients in the Hospital who have been treated by so-called Specialists for so-called Pyorrhea. One of these, a man of about forty years of age, gave me this history of his condition.

About eight months ago, feeling that there was something wrong with his mouth conditions, he consulted his Dentist who told him that he had Pyorrhea, and sent him to a Specialist to be treated.

The patient said to me;—"I have been taking treatment for eight months. The specialist tells me that I am getting better. I have been taking one kind of pill before breakfast, another kind of pill in the middle of the forenoon, another kind of pill before supper, and a fourth kind before retiring, but in spite of it all, I am losing my teeth." Examination of this patient's mouth showed one upper molar on the left side so loose that it could have been removed with the fingers.

On the right side the lingual root of the second molar was entirely exfoliated so that an instrument could be placed over the apical foramen. The remaining teeth in this patient's mouth showed a deposit of salivary calculus, the removal of which brought about a very much improved condition.

A physician attached to the Montreal General Hospital, of which institution our Clinic is a part, said to me the other day at the dinner table "What do you know about the treatment of pyorrhea with Thyroid Extract." To my shame I had to confess that

I didn't know anything about it.

Another physician, a day or two after asked me if I knew what results were being obtained in the treatment of pyorrhea with Radium. Once again I had to admit my ignorance.

I am convinced that such cases as these which I have just referred to, might be multiplied by the thousand. What are we to do in the matter? I desire to put myself on record as saying that I have seen in the past ten years, not one or two or ten cases treated, where not only was the mouth conditions improved, and in many cases made entirely healthy, but as a result of this treatment the general health of these patients was wonderfully improved. These results were brought about not by Specialists, but by ordinary Dental Students, in an ordinary Dental Clinic, and the results were not due to the application of any medicinal agent, but due wholly to the removal of mechanical irritants and in some few cases to the correction of faulty occlusion.

The question arises and must be met by every intelligent Dentist, what is the relation of the General Practitioner in Dentistry to the patient who presents in ordinary routine practise, and in whose mouth there is a more or less well defined evidence of that condition, which for want of a better name, is very generally spoken of as Pyorrhea?

Permit me to revert to a sentence which I have already used in discussing what we were taught twenty-five or thirty years ago. I said we learned to extract teeth more or less efficiently. In conformity with other phases of the work of the General Practitioner in Dentistry, the extraction of teeth has been exalted to the dignity of a specialty, and is now known as Exodontia.

Many men to-day are speaking of Preventive Dentistry, but just at the present time there seems to be no immediate prospect that Preventive Dentistry will, in the near or even distant future eliminate the necessity of extracting human teeth. Perhaps nothing in connection with our Professional work has contributed so largely to the lowering of our Professional standard as has the necessity for extracting teeth, and the manner in which it was done.

It is not to be wondered at that people of all classes had a holy horror of having their teeth extracted. The pain was always excruciating, the loss of the extracted teeth nearly always noticeable, and the change brought about by such extraction was, in almost every instance undesirable from the esthetic standpoint.

When the use of forceps supplanted the turnkey, a very marked advance was made, but the pain, the dreaded pain still remained, and Dentists and Dentistry were always associated in the public mind with these horrors.

The introduction of Nitrous-Oxide as a general anæsthetic did much to alleviate this dreaded pain, and to rob the operation of much of its dreaded horror. Local anæsthesia has still further contributed to the lessening of the dread of this frequent necessity.

And yet a great dread remains to those who must suffer the loss of natural teeth. I was delighted a few weeks ago when I noticed in one of the Journals, an article dealing with this question. If I mistake not, the article mentioned the fact that some Dentist in Ontario had discovered some agent which could be locally applied, and such application rendered the extraction of teeth painless. What a God send it would be!

Any man of ordinary ability may learn to extract teeth quickly. But there is something more to the extraction of teeth than their rapid removal from the alveolar socket. The condition in which the mouth is left, the condition of the alveolar process, as well as the condition of the soft tissues, should be kept as prominently in mind by the operator who is doing this work, as the removal of the teeth.

For many years we have been spoken of as Dental Surgeons, and the public generally associates our surgery with the extraction of teeth. I believe that much is possible in this field, much that would rob this operation of the dread to which we have referred, and at the same time be more in keeping with the modes of procedure, as well as the after results of modern surgery, as practised in other parts of the body.

It strikes me very forcibly that just at this point a very considerable advance might be made in the education of our students. The underlying principles of Surgery, the necessity for cleanliness, the adaptation of tissues, the use of surgical needles and other instruments, the function and application of the many forms of ligatures now in use, the dressing of wounds, and many other things which will occur to the minds of all of you. All of these should, I am persuaded, form a part, and a very interesting part of the teaching of Dental Students.

I have not said a word about Radiolgy, or as it is commonly spoken of, X-Ray work in Dentistry. Some years ago in a paper

which I read I made this remark; "In the very near future an X-Ray machine will be as much a necessity in a modern Dental office, as

an operating chair or a Dental engine."

The time came more quickly than most of us thought. But we must learn this fact, that while a Radiograph or X-Ray film may reveal many things, and may be a real help in determining conditions in many obscure cases, at the same time, it must be borne in mind that it is extremely easy to be misled by an X-Ray film, and very frequently we will be surprised when we discover extensive areas of diseased tissue where none at all was suspected, and on the other hand, that we find no such condition in a region where we were sure from the Radiograph, that infection to a marked degree was present. Care must ever be our watchword in dealing with this.

In conclusion, we are perhaps all ready to ask the question; What is the nature of the Superstructure of the Dental Edifice which we are building? There can be no manner of doubt of the trend of public opinion and professional thought in regard to the part which mouth conditions play, in connection with the general health of the human body.

Much that is unreliable, unscientific, and unethical is being written and talked of in regard to systemic infection from local mouth conditions. But while that is true, it is equally true that, the half has never been told, of the evil which may follow in the wake of neglected mouths and infected teeth.

I want to lay upon the shoulders of the Dentists of this country the full share of the burden which they must assume, as well as the duty which devolves upon every man in the Profession, of becoming and remaining as intelligent as it is humanly possible to be, regarding his individual part, in ministering to the comfort and happiness of the patients, who entrust themselves to his care; and his duty also to exercise that unceasing care which will prevent any operation which he may perform, from producing any pathological condition, or accentuating any such condition which may be present when such patient comes for treatment.

I spoke a moment ago of the trend of public opinion. Another factor presents itself in regard to this matter. The men and women who know most of the suffering to which human flesh is heir, (I refer to the physicians of this country) know that no line of demarkation can be drawn between metastatic infection, which may develop as a result of a diseased mouth or teeth, and metastatic infection from any other organ.

Because of this knowledge, physicians to-day, as never before, are seeking the co-operation of the Dentist. Our schools and colleges must prepare the graduates of the future, to meet the demands which physicians are justified in making.

We have used for many years the term General Medicine, to cover the ailments of every part of the body. To-day it is impossible, absolutely impossible, for any one to deal intelligently with the pathological conditions of the whole body. Because of this difficulty, men, more and more, are specializing in various fields.

We hear from many sources the statement that, "Dentistry is a specialty in Medicine." The truth intended to be conveyed is not well stated. The fact is that, General Medicine, as that term is used, implies the treatment of disease in any or every part of the body.

With this thought in mind, General Medicine, means a "partial" knowledge of many of the branches which are now known as "specialties," and Dentistry cannot possibly be separated from the others.

There are three words very freely heard to-day at all Medical gatherings, and I wish to commend to my confreres the study of these three words, with the hope that we will study them as closely as possible, that our field of usefulness may be enlarged, as we carry on from day to day in the practise of our own specialty.

The first of these words is ETIOLOGY and the definition of the word is; "The doctrine of causes, specifically of the causes of disease; causation."

The second word is METABOLISM and the definition of the word is; "Tissue-change, the sum of chemical changes whereby the function of nutrition is effected; it consists of anabolism, or the constructive or assimilative changes, and catabolism, or the destructive or retrograde changes."

The third word is METASTASIS and the definition of the word is "The shifting of a disease, or its local manifestations, from one part of the body to another, as is seen in mumps when the symptoms referable to the parotid gland subside and the testis becomes affected. (2) In cancer, the appearance of neoplasms in parts of the body remote from the seat of the primary tumor."

Around these three centres, much of the educational training of the Dentist of the future, must of necessity revolve.

"Knowledge comes but Wisdom lingers, All things here are out of joint; Knowledge comes but slowly, slowly, Creeping on from point to point."

May we not all hope for, and look forward to, a day when, as a United body, every individual member of the Profession, will do what in him lies, to increase the general fund of knowledge, so that the greater good may come to the great Public to which we minister, and still further, to lessen the terrible prevalence of suffering, following in the wake of Dental caries.

Surely this is a consummation devoutly to be wished.

# Osteomyelitis of the Jaws

W. A. Sharon

Osteomyelitis is an inflammation of the marrow and adjacent osseous tissue of a bone. Usually the inflammation is widespread tending to involve the entire marrow cavity. The process as a rule is very destructive with extensive necrosis of the bone.

The upper jav on account of its protected position, its free blood supply and absence of any true marro; cavity is compara-

tively free from this disease.

Although the lower jaw hasn't a distinct marrow cavity as compared with the long bones, it has a central canal containing the inferior dental nerves and vessels and adjacent cancellous bone which nearly disappears near the symphisis. The whole is surrounded by a dense wall of compact bone surmounted by soft cancellous bone forming the alveolar process.

The body of the lower jaw differs from the long bones on account of the fact that teeth germs are present in childhood, while in the

adult alvcoli exist for the teeth.

The rami resemble the flat bones as their structure is denser and the marrow is of spongy type.

After the teeth have been extracted the alveolar process absorbs and the body is similar to flat bone.

Cancellous bone is composed of trabeculae enclosing spaces. In compact bone the layers or lamellae of bone tissue have a definite arrangement into systems, the distribution being largely dependent upon the shape of the bone and the distribution of the blood vessels.

In spongy bone there is no arrangement of the bone tissue into systems. The trabeculae consist entirely of bony tissue laid down in layers. These trabeculae anastomose and enclose spaces containing marrow and serve for the passage of blood vessels, lymphatics and nerves.

If you examine a longitudinal section of compact bone, you will notice channels running through it, most of them being parallel to the long axis of the bone. These channels anastomose by means of branches and form a regular communicating system. They are called Haversian canals and transmit blood vessels, lymphatics and nerves. These not only communicate with each other but also with the surface of the bone and the central cavity.

In a cross section of long bone there are three distinct systems of lamellae, Haversian, interstitial, and circumferential. Haversian lamellae are arranged in a concentric manner around the Haversian canals. Between these lamellae are the lacunae with their enclosed bone cells. The lacunae of a Haversian system communicate with one another and with their Haversian canal by means of canaliculi.

Channels, known as Volkman's canals run from the periosteum to the Haversian canals and carry blood vessels. Similar canals pass from the inner Haversian canals into the marrow cavity.

Covering the surface of bone is a fibrous connective tissue membrane called the periosteum. This is firmly attached to the outer layer and is composed of two layers. The outer layer is composed of coarse fibres and contains the larger blood vessels, while the inner layer has fine white fibres and elastic fibres which support smaller blood vessels.

From the periosteum there are bundles of white fibres, called Sharpey's fibres which pierce the outer layer of bone.

Bone marrow is the soft tissue which fills the medullary and Haversian canals of the long bones and the spaces between the trabeculae of spongy bone. It consists of a fine connective tissue in which are embedded various kinds of cells.

In large marrow cavities there is more or less definite arrangement of the reticular fibres to form a thin lining membrane known as the endosteum.

The blood vessels of bone run into it from the periosteum. Near the centre of shaft of long bone is a canal, the nutrient canal for passage of nutrient vessels. In addition to these the surface of the bone is pierced by volkman's canals for transmission of smaller vessels. In compact bone these give rise to network of branches which run in the Haversian canals. In spongy bone the network lies in the marrow spaces.

Lymphatics are present in the outer layer of the periosteum and the lymph capularies accompany the blood vessels in volkman's and in the Haversian canals.

"The lacunae and canaliculi constitute a complete system of lymph channels which communicate with the lymphatics of the periosteum, of volkman's and the Haversian canals, and of the bone marrow.

Both medullated and non-medullated nerves accompany the vessels from the periosteum through volkman's canals into the Haversian canals and marrow cavities.

There are three different methods of bone development, intracarti agenous, in cartilage, intramembranous, in connective tissue, and supperiosteal—under the periosteum.

In intramembranous development the matrix in which the bone is developed is connective tissue. Some of the bundles of white fibres become calcified or impregnated with lime salts and a calcification centre is established. Between the bundles of calcified fibres the connective tissue is rich in cells and vascular and is known as osteogenetic tissue.

Along the surface of the calcified fibres certain of the osteogenetic cells arrange themselves in a single layer. These are known as osteoblasts or bone formers. By means of these osteoblasts a thin plate of bone is formed between themse ves and the calcified fibres. This plate of bone at first contains no cells but as the lamella of bone grows in thickness, the layer of osteoblasts become completely enclosed by bone and are transformed into bone cells and lie in spaces called lacunae. In this way irregularly anastomosing trabeculae of bone are formed enclosing spaces. The bony trabeculae at first contain remains of calcified connective tissue fibres while the spaces contain blood vessels, and osteogenetic tissue.

The osteoblasts ultimate'y disappear and the connective tissue membrane has been transformed into cancellous bone.

All bone is at first of the spongy variety. When it is to be converted into compact bone, there is first absorption of bone by osteoclasts with increase in the size of the marrow spaces and reduction of their wa's to thin plates. These spaces are known as Haversian spaces. Within these new bone is deposited, being done by osteoblasts which lay down layer within layer of bone until the Haversian space is reduced to a small size, an Haversian canal. In osteomyelitis infection travels along the canal with ease and the medullary spaces serve as a reservoir for the pus. This does not apply to the rami, however, as here the disease is more localized.

"An inflammatory process within the body of the lower jaw while it does not spread through a mass of soft marrow, quickly produces a serious involvement of the inferior dental vessels and nerves rapid death of the interior of the jaw follows, interference with circulation and enervation of the teeth. This is followed by their loosening and often separation from the affected alveoli."

Osteomyelitis differs from simpler infections and forms of necrosis as follows:—

- 1. Extensive involvement of contents of canal.
- 2. Tendency to widespread necrosis of bone.
- 3. Damage to many or all of lower teeth.

"Osteomyelitis differs from other infections of the jaw by the fact that it develops within the bone and therefore local swelling is not a primary feature, by tendency to widespread necrosis and especially by the very early and often violent general system c disturbance from the absorption of septic material retained under tension within the body of the jaw."

## ETIOLOGY.

The infectious agent, in the majority of cases, gains entrance into the canal by way of the teeth. Infectious from gangrenous pulps or abcessed teeth are very common and occasional cases are due to pyorrhea alvcolaris and gangrenous stomatitis. Frauam

resulting in fracture often furnished a direct path for infection.

Excluding infections from the mouth the remaining cases are the result of hematogenous infection. These may follow acute infectious diseases as scarlet fever or typhoid or may accompany a septicemia from any cause.

"Hematogenous osteomyelitis is the only example of pure infection, usually staphylococeus aureus or streptococus, which we have in the manditle."

Metallic poisons as mercury, arsenic, and phosphorus are also predisposing factors.

The developmental type of osteomyelitis is a common form which develops between the twelfth and sixteenth year. It is somewhat similar to the osteomyelitis occurring in the long bones of the extremities. In the latter case the cause is often slight. The child may have been exposed to cold or wet or have received a slight bruise on the shin. Signs of severe infection follows—chill, fever, delirium and widespread destruction of bone.

The infectious organism, staphylococeus or streptococeus, has been circulating in the blood and has localized in the bone as a result of slightly lowered resistance.

It is similar in the mandible. The teeth may have been crowded and are irregular, or perhaps an orthodontia appliance has been fastened to the teeth and as a result more bacteria than usual are present in the mouth. An extraction may have been done, a large cavity may be present or the child may have received a slight blow over the jaw.

In other cases there is no history of any such conditions and it is probable that the infection originates as in the forms of osteomyelitis of the long bones from lodgement of bacteria carried in the blood.

#### PATHOLOGY.

The pathology of acute osteomyelitis is that of a rapidly spreading infection along the inferior denta' canal. No matter by what method the bacteria invade the area, the result is the same. The danger lies in the involvement of the vessels and nerves. The exudate of serum and leucocytes soon fills the canals and compresses the vessels so that circulation is stopped, and rapid degeneration and changes occur in the bone. The alveolar process softens, the teeth loosen and if the exudate within the canal becomes purulent it burrows along the roots of the teeth and escapes at the gum margin. Often it perforates the bone and as it passes through it lifts the periosteum with the result that the circulation is cut off from without as well as from within. This is followed by a rapid and widespread necrosis. The ocdema may spread to the floor of the

mouth, and to the larynx, interfering with swallowing and respiration.

#### SYMPTOMS.

Sudden appearance of gnawing pain is characteristic of all cases of osteomyelitis regardless of location. Person may complain of only slight discomfort in the jaw, or of toothache. In the early stages the process is confined within the bone and there is little ocdema or external swelling to indicate the disease.

The severe constitutional symptoms are very striking. Often there is an initial rigor or chill followed by a rapid pulse, high fever and at times delirium. Within twenty-four to forty-eight hours the beginning of the loosening of the teeth and the increasing swelling of the tissues indicate that the condition is worse than an ordinary toothache or alveolar abscess.

After a time abscesses form and open into the mouth or externally through the cheek and with the escape of pus, temporary relief is afforded.

If the process is diffuse, sooner or later part of the bone dies and with the casting off of the sequestrum, the disease usually stops.

Often a different course is seen. The swelling becomes reduced and the disease becomes localized. The jaw thickens and the soft parts become dense. This localized form occurs most frequently in the ramus of the mandible but may happen in the body provided drainage is established.

The diffuse form is as a rule very acute and impairs the general health on account of septic absorption and also on account of the fact that it is impossible for the person to masticate food properly because he can only open his mouth a short distance.

It is difficult to tell what controls the size of the sequestrum in an untreated patient. That a total necrosis does not frequently occur seems to be due to a tendency which the marrow possesses to wall off the disease by the formation of dense bone.

The symptoms in an acute case may subside, sinuses form and the disease take a subacute or chronic course. In this event there is usually a sequestrum present which must be removed.

In the jaw there is a possibility that a dead tooth could give the appearance of a chronic osteomyelitis. These cases are frequently seen and also a number in which the external opening of the sinus was at a distance from the cause. These sinuses are ery frequent in the region of the chin where a dead incisor or cuspid may be the cause. Extraction of these may be insufficient for cure as a pocket of pus or granulation may be present at the apex of the root.

The long bones and the mandible are very similar in regard to the uniformity in the conduct of the periosteum after loss of parts of the cortical bone If a diffuse necrosis sets in before complete development, the longitudinal growth is much disturbed, but as a rule the diametrical growth will go on and new bone be formed provided the periosteum remains intact.

The time required for the formation of a sequestrum varies from twelve to twenty weeks at the end of which time a fairly firm involucrum or shell of periosteal bone is formed.

For some time the involucrum is soft and the muscles of the face and jaws produce a certain amount of deformity by shortening the newly formed mandible. If the sequestrum includes the entire diameter of the jaw, there is malocclusion of greater or less degree.

#### DIAGNOSIS.

"The diagnosis may be made by the history, the severity of the early general symptoms with relatively slight local symptoms, the pain on prolonged deep pressure over the body of the jaw or on the teeth, the early widespread loosening of the teeth and the general septic manifestations, and with the secondary swelling of the adjacent soft tissues and the discharge of pus the diagnosis is confirmed.

Occasional difficulties in diagnosis will be experienced, but they are as a rule, rare. Syphilis and actineomyelitis may confuse. Very valuable information may be gained by the X-ray in cases in which the disease is localized, in which there is a definite sequestrum or in which a fracture is the starting point of the disease.

#### TREATMENT.

The treatment should aim to prevent widespread necrosis or other complications. The canal should be immediately opened to allow escape of inflammatory material. If done at the first stages, the inflammatory process may be arrested, preventing the formation of pus and widespread destruction of bone.

An incision should be made on the under surface of the jaw and carried to the bone which should be drilled to provide drainage for inferior dental cana. In some cases this is not necessary, but it does not frequently happen as the person generally delays until suppuration has started. It is very important at this stage to try and preserve the teeth, to give free vent to the discharge and to limit septic absorption on the part of the patient.

If the process is comparatively limited, drainage through openings made within the mouth may be sufficient.

Frequently a number of teeth will separate from the alveolar process and will be found hanging by a bit of mucous membrane. These as a rule should not be removed.

If it is evident that the discharge of pus will be free and last for considerable length of time and that a sequestrum of considerable size will be formed, external incisions under the jaw should be made. In this way the bulk of the pus escapes without going into the mouth and thereby poisoning the patient.

Drainage should be facilitated if necessary by drilling or opening the bone and by introducing through the external incision strips of gauze which must not be too tightly packed. This should be saturated with solution of boracic acid. Euroform paste may also be used.

Drainage is aided by having hot water bottles applied over the dressing.

If the external drainage is not sufficient and particularly if large sequestra form, the incisions should be enlarged from time to time so that the patient does not suffer from constant absorption of pus. Mouth washes such as potassium permanganate should also be frequently used.

#### Necrosis.

"Necrosis is a chronic stage which succeeds acute or subacute osteomyelitis. It implies the presence of a sequestrum, more or less detached, of an involucrum, more or less developed and of cloacae communicating with surface of bone by sinuses."

When pus penetrates the bone, the periosteum is raised from the cortex and new subpereasteal bone is formed, called the involucrum, and such portions of the bone marrow that survive form new bone within. Eventually the necrotic portion of bone, known as the sequestrum, is more or less completely surrounded by new bone but still communicates with the surface through openings in the involucrum, and through these the pus flows.

Necrosed bone should not be removed until it has been cut loose from living bone by leucocytes because until this is done it is impossible to distinguish the line of cleavage between the two.

Before trying to obliterate a bone cavity all irritants as roots, sequestrum spongy bone or diseased granulation should be removed.

If cavity extends deep into the bone it will have to be removed artificially by means of "bone plombe."

There are two kinds of 'bone plombe' absorbable, made from animal wax, and slightly absorbable, as Beck's bismuth paste.

Whether it is good practice or not to use these is questionable on account of the fact of the difficulty of maintaining them due to absorption.

Reference—Bailey's Histology, Brophy's Oral Surgery, Rose & Carless, and articles from the Dental Summary.

# Wearing Artificial Teeth

F. A. French, D.D.S., L.D.S., Calgary, Alta.

Many people dread the thought of wearing artificial teeth. This is due largely to the number of failures and unsightly conditions they have seen in this class of work.

Like other branches of science, however, the art of Prosthetic Dentistry is making wonderful progress, the slipshod haphazard guess methods of former days are rapidly being supplanted by scientific and accurate methods that produce more accurate results.

The natural teeth are lost either through accident or because through being diseased they had become a source of discomfort and a menace to the general health

It is needless to state that one feels the loss and need of their teeth most keenly when they are deprived of those which nature gave them. In providing patients with artificial dentures to replace their lost teeth, the dentist cannot promise to restore the efficiency of their natural teeth, but he can remedy the condition in which they have no teeth at al.

If this condition can be improved, let us say 25 per cent., artificial dentures are well worth taking advantage of; and if 75 per cent., the improvement then all must admit is wonderful -but no one should expect 100 per cent. efficiency. Some patients do go so far as to say that they would not exchange their artificial dentures for their natural teeth, but such a high realization of successful methods cannot be hoped for in every case.

#### LONG WAITS ELIMINATED.

As faces vary, so do mouths, and each mouth will only lend itself to a certain result. This result is attained after a careful study of the needs of the case and to secure effective results the greatest care and attention must be given to each individual case. Until recently it was the custom to have patients wait from three to eight months after extractions of the teeth to allow 'the gums to settle' before dentures were inserted. Time, research work and experience have proved this procedure to be wrong because, by waiting so long the patient loses the natural facial expression and the ability to chew food, the cheeks fall in, the tongue thickens, the muscles of mastication lose their power and hearing may be impaired.

"Greater comfort and satisfaction are experienced by the immediate insertion of dentures after extraction as the mouth can be put into condition for dentures at that time.

#### CAN MASTICATE FOOD.

This avoids the necessity of appearing toothless among business and social associates; besides, facial expression can be retained, as well as proper distance between chin and nose. The use of more or less solid food is also afforded, the cheeks do not fall in, the muscles of mastication still retain their power, and hearing is not impaired.

Patients intending to have diseased teeth removed should if possible before the teeth are extracted, visit the dentist who is to make the dentures, so that he may take measurements and make observations which will be of material assistance in retaining the normal facial expression. To retain it is easier than to restore it when lost.

Success in wearing dentures depends to a large extent upon the patient. Those who approach the matter with determination learn with surprising ease and often have quite a complete mastery in a few days. The dentist cannot undertake to supply the patience and persistence required—the patient must furnish these.

After dentures have been made to fit the mouth constant application on the part of the patient is necessary to make them efficient in use. When first fitted with dentures one naturally feels that the mouth contains something foreign. This sensation is experienced by all patients for a short time, but by constant wearing of the dentures it soon diminishes and in a few days disappears.

New artificial teeth will be about as serviceable as a new bicycle or new piano on which one has never taken a lesson. One must learn to ride or play upon them before they afford any pleasure and so it is with artificial teeth. One should not expect full efficiency and satisfaction until they have had time to learn their use.

#### SOME LEARN QUICKLY.

Some patients become efficient in using dentures very quickly just as some learn to ride a bicycle very quickly, while others require months to gain the same mastery.

Successful dentures result only from cooperation between the dentist who knows how to make them and the patient with the necessary determination to learn their use.

The effort required on the part of the patient is rewarded by a glowing sense of comfort that more than repays the inevitable annoyance that first accompanies the wearing of artificial dentures.

# Musings on Cheerfulness and Health

G. Q. Colton, D.D.S.

Few people are aware of how much health of body depends on health of mind and spirit. It has been said that the man who makes two spears of grass to grow where only one grew before is a public benefactor. A writer who brings a smile upon the face of the reader is a benefactor.

There are too many tears and too few smiles in the world. Aside from my daily, I take a weekly religious paper, in which one column on the last page is devoted to "Pleasantries,"—little, short paragraphs, full of humor, wit and wisdom; and they form one of the most attractive and valuable features of the paper.

Laughter promotes good digestion and sound health. "Laugh and grow fat," is an old proverb. No fat man was ever hung. He is too full of "the milk of human kindness" to commit a crime. Shakespeare understood this when he put into the mouth of Julius Cæsar the words:

"Let me have men about me that are fat; Sleek-headed men, and such as sleep o' nights: Yond' Cassius has a lean and hungry look; He thinks too much; such men are dangerous."

And when Antony defends Cassius, Cæsar adds: "Would he were fatter."

In "Love's Labor Lost," Shakespeare says:

"Had she been light, like you, Of such merry, nimble, stirring spirit, She might have been a grandam ere she died, And so may you, for light heart lives long."

And in "Taming of the Shrew,"

"Frame your mind to mirth and merriment, Which bars a thousand harms, and lengthens life."

The power to create sunshine in our lives exists in ourselves. Milton says:

"The mind is its own presence, and in itself Can make a heaven of hell, a hell of heaven."

In "Hamlet" we read: "There is nothing either good or bad, but thinking makes it so." And in "Lacon," "There is this difference between happiness and wisdom; he who *thinks* himself the happiest man, really is so; while he who thinks himself the wisest man, is generally the greatest fool."

Shakespeare says there are men of

"Such vinegar aspect, That they'll not show their teeth in way of smile, Though Nestor swear the jest be laughable." The story is told of an inveterate grumbler who died, and, by some means, got into heaven. He met an old neighbor, who asked how he got on in coming up. "Well," was the reply, "it rained, and I got my wings very wet, and my halo didn't fit." How difficult it is to please some people! "Lacon" says, "He is not so much to be pitied that can please nobody, as he whom nobody can please."

Somebody has said:

"A little nonsense now and then Is relished by the best of men."

Sidney Smith wrote,

"Mankind are always happier for having been happy; so that if you make them happy now, you make them happy twenty years hence by the memory of it."

The poet Whittier wrote in a lady's album,

"Our lives are albums written through With good or ill, with false or true; And as the blessed angels turn The pages of our years, God grant they read the good with smiles, And blot the ill with tears."

#### Wilbye writes:

"There is a jewel which no Indian mine can buy, No chemic art can counterfeit; It makes men rich in greatest poverty, Makes water wine, turns wooden cups to gold, The homely whistle to sweet music's strain, CONTENT."

#### The good Book says:

"A merry heart doeth good like a medicine."

"A merry heart maketh a cheerful countenance; but by sorrow of the heart the spirit is broken."

"All the days of the afflicted are evil; but he that is of a merry heart hath a continual feast."

The bright and cheerful countenance of your physician, with his encouraging words, has more to do in your recovery to health than the medicine he leaves.

#### The poet Wolcott writes:

"Care to our coffin adds a nail, no doubt, And every grin so merry draws one out."

Nearly all the sound health and happiness in this world springs out of cheerfulness and contentment. "Godliness with contentment is great gain."

#### King Henry V1. exclaims:

"My crown is in my heart, not on my head, Not deck'd with diamonds, and Indian stones, Nor to be seen; my crown is called content: A crown it is that seldom kings enjoy.'

Anne Bullen, the mother of Queen Elizabeth, when lamenting the misfortunes of Queen Katherine, exclaims:

> "T is better to be lowly born. And range with humble livers in content, Than to be perk'd up in a glistering grief, And wear a golden sorrow."

"Poor and content is rich, and rich enough."

#### Petruchio says to Katharina:

"T is the mind that makes the body rich; What, is the jay more precious than the lark, Because his feathers are more beautiful? Or is the adder better than the eel, Because his painted skin contents the eve?"

Robert Sears, who died recently at the age of ninety-two, and who published the first Illustrated Family Bible in this country, issued a s'ip entitled "How to be Happy," in which he laid down the three following rules:

"Try your best to make others happy."
 "Be content with little."

3. "Look on the bright side of things."

Somebody has said (or ought to have said): "Never let a day pass without saying or doing something to make another a little happier."

More than half our troubles are anticipated, but never realized. The Rev. James Freeman Clarke, D. D., wrote in my Autograph Book:

"The fear of Ill exceeds the Ill we fear."

A man said to his friend, "You have had a great many troubles in your life." "Yes," he answered, "but the curious thing about that is nine in ten of them never happened."

In olden times, when I was a boy, we were taught that this world was but a pilgrimage to another; and that laughter, if not sinful, was next thing to it. The favorite hymn at all funera's commenced.

> "Hark! from the tombs a doleful sound, Mine ears attend the cry."

Our minister always wore a sad and sombre countenance; and we, boys, avoided him as we would a grave-yard, considering him a kind of walking tomb-stone. A man was once fined in Connecticut for kissing his wife on Sunday! And this keeping of the letter of the law, (so considered) without regard to the spirit, still lingers

in spots.

Diseases and troubles of the mind are much more difficult of treatment and cure than those of the body. The mind of Lady Macbeth was distracted by the memory of the murder of King Duncan, and, on meeting her doctor, Macbeth exclaims:

"Canst thou not minister to a mind diseas'd; Pluck from the memory a rooted sorrow. Raze out the written troubles of the brain; And by some sweet oblivious antidote Cleanse the foul bosom of that perilous stuff Which weighs upon the heart?"

I am eighty years of age, though in bodily health and vigor I do not feel to be over fifty. I attend to business daily at my office in the Cooper Institute.

If you ask me how I attained such age and good health, I answer: *First*, I have practiced *temperance* in eating and drinking; and, *Second*, I have tried to cultivate a cheerful and contented spirit.

In closing these musings on cheerfulness and health, I think I can truly say of myself, with old Adam in "As You Like It:"

"Though I look old, yet I am strong and lusty: For in my youth I never did apply Hot and rebellious liquors in my blood; Nor did not with unbashful forehead woo The means of weakness and debility; Therefore my age is a lusty winter, Frosty, but kindly."

# The Dental Service Department of Public Health, Toronto, 1921

Annual Report of Edmund A. Grant, D.D.S., Director of Dental Service

This report briefly summarizes the service rendered by the Dental Service of the Department of Public Health in the public and separate schools, and the hospitals of Toronto, under the direction of Dr. Charles J. Hastings, Medical Officer of Health.

The work in the public schools was carried on by a staff of twenty-six dentists on half time service. Three of these devote all their attention to making a survey of the children's mouths, so that in the course of the school year, each child is examined and the parent notified of the dental conditions found. Through their classroom talks, they spread the gospel of oral hygiene and the care of the teeth. To further impress this on the child, each one is given at the time of the examination, a brief circular emphasizing the chief essentials of mouth health. The educational value of this to the child, and furthermore to the parents, is enormous. Through this agency many parents, being thus informed of the need, are led to place their child in the care of the family dentist. For those who are unable to pay for dental treatment, the service conducts three extraction and nineteen operative clinics which are distributed over the City so as to best serve the needs of the school population.

During the year, 55,586 children were examined, and of these 28,752 or 52% were found to have notifiable defects. While this is a large percentage, yet it is a vast improvement over the conditions existing before the service was inaugurated, when the average was about 97% and shows that a great deal has been accomplished.

In the extraction clinics 15,108 deciduous, and 2,275 permanent teeth were extracted and 13, 385 local and 1,134 general anæsthetics administered. In addition, some operative work was undertaken, 1,142 treatments being given and 471 fillings inserted.

The public school operative clinics completed the following operations for 26,750 children, of whom 20,090 were completed.

Extractions of deciduous teeth—14118

	permanent	2.2	094
Treatments		1	7292
Prophylaxis			5047
Amalgam fillin	ngs	1	16958
. Cement '	9		9421
Temporary '	,		2244
Total No. of o	operations		65772

In addition to this, through the efforts of the school nurses 3,795 children had their dental treatment completed by private dentists.

For the separate schools there are only two dentists to care for the needs of 10,000 children. This year the plan was followed when schools re-opened in September of having both these dentists devote all their time to the survey, and this was completed by November. 10,323 children were examined, of whom 8,861 or 86% had notifiable defects, truly an alarming condition. In some schools the percentage was as high as 97% and in fact one small school showed 100% requiring dental treatment. There is urgent need for another dentist on this staff.

In addition to completing a survey, the following operations have been performed:

Extractions of deciduous teeth - 980 permanent " — 122 Local anæsthetics administered — 184 42 General Treatments -488\_\_ 93 Prophylaxis treatments Amalgam fillings -796Cement fillings --- 905 - 86 Temporary fillings Total No. of operations -3409

The following operations were completed during the year by the hospital staff of six dentists in the four City hospitals:

te nospital stan of six dentists	III CII	e ioui
Extractions	-1	1340
Local anæsthetics	_	1828
General "		777
Treatments		1849
Amalgam fillings		327
Cement "	Astronome	280
Temporary fillings		208
Full dentures		658
Partial "		670
Repairs to dentures		226
Resets		17
Crowns		25
No. of patients treated	1	3775

At the request of the officers of the I. O. D. E. Preventorium, a portable clinic was installed there for two weeks until all the dental needs of the institution had been cared for. The following operations were performed for 61 children:

Deciduous teeth extracted	 31
Permanent " "	 3
Treatments	 52
Amalgam fillings	 72
Cement fillings	 35

Total operations —193 56 children completed.

Early in the year the service sustained a severe loss in the death of Major W. R. Greene, who only a short time before had been appointed Director of Dental Services in succession to Dr. W. E. Willmott. Major Greene had a splendid record of service overseas and displayed a keen interest and untiring energy in this new sphere of work. His sudden taking away was deeply regretted by his many friends in the service and throughout the dental profession. The position remained vacant until the undersigned was appointed on August 1st.

The Department also lost the services of Dr. C. E. Stewart of Kimberley School, and Dr. C. A. Collard of Western Hospital, who resigned, the former moving away from the City, and the latter giving up practice on account of ill health. They had always given efficient service and their resignations were reluctantly accepted. Dr. J. S. Butler was appointed to succeed Dr. Stewart at Kimberley School and Dr. W. A. Madill a former member of the staff, who had been released for overseas duty was reappointed, in place of Dr. Collard. The staff was also increased by the appointment of Drs. G. S. Paul and Ross Anderson to take charge of new clinics. New clinics were opened in Lansdowne School and Keele Street School. For this purpose the most modern equipment obtainable was secured—of a unit type with a child's chair, as designed by the S. S. White Company for the Forsyth Dental Institute of Boston.

While considerable has been accomplished, yet a careful perusal of this report will show that quite a number of the children are still uncared for. Another factor to be considered is that the school population is increasing rapidly each year. The Board of Education estimate that the public school population will increase this year by 10,000. How could the Dental Service be best expanded to meet this increased need? As previously mentioned, the clinics are only operated on part time service and it would seem that the simplest method of supplying sufficient service, would be to convert some of the present half time clinics into full time service. These could be selected in most congested districts where the need was greatest. It is felt that if four clinics in the public schools—one each in the four most populous school districts—were put on full time, that the pressing demand of the next year or two would be satisfactorily met. Similarly another dentist added to the separate school staff would enable this service to more effectively cope with the need. This expansion, while it would mean a slightly increased staff, would not involve the purchase of any additional equipment, as it is already available. It would simply mean that some equipments now lying idle for half a day would be in use full time.

It is hoped that it will be possible some time in the near future, to place a dentist on duty at the Weston Sanitarium. There is a beautifully equipped dental operating room in the Queen Mary building there, but with no one to staff it.

This report is put forward at the present time for the information of the Dental Profession, and also with the object of enlisting their support and co-operation, more particularly those practicing in Toronto. Complaint is sometimes made that the dental examination as recorded on the survey chart, is not thorough enough. If one should stop to realize the magnitude of the task, 85,000 children to be examined yearly, and that this examination is generally made in the class room, using only a wooden tongue depressor, this criticism would be less often heard. Further, sometimes considerable interval may elapse between the time of the examination and the time the child comes to the family dentist, and many things may have occurred at this rapidly developing age. Temporary teeth marked for extraction may have already exfoliated, new cavities may have appeared or become noticeable. The important thing about this examination is that it separates the sheep from the goats —that those having defective teeth carry a notice to their parents, warning them that dental attention is urgently required.

The service is at all times anxious to encourage the sending of the child to the family dentists, and only undertakes treatment at the request of the parent who signs a form stating inability to pay for the service. It is just here we would appreciate the sympathetic support of the profession. When a child comes back from the family dentist and says, "Our dentist says not to bother having these teeth filled, as the teeth will all come out some day," we feel under such circumstances, that someone has "let us down" rather badly. Fortunately this does not occur very often, and we believe that the great majority are behind us in the effort to improve the dental health of the rising generation.

# The New University Entrance Requirements

W. J. Dunlop, B.fl., Director, University Extension, University of Toronto.

The public may be interested in knowing the circumstances which led to the recent increase in entrance requirements in the Faculties of Arts in Ontario Universities. It often happens that the purpose actuating changes of this kind is misconstrued because it is misunderstood. It will be found that the changes made recently are really to the great advantage of the average boy or girl coming from the country to a University.

One of the difficulties with which any university has to contend is the fact that there are a good many young people who are more interested in the social than in the academic life of a university. Such students rarely come from country or village homes. The country boy and the country gir. come to university to study and they do study.

Faced with the dilemma which the less earnest type of student produces, faced also with the fact that literally scores of such students fail each year in their examinations, the Universities of Ontario are driven to the necessity of raising their entrance standards. But this has been done solely for the purpose of barring out the student who is too immature or whose previous education is too meagre to enable him to take advantage at his present stage of the work which the University has to offer him.

At a conference of the four Universities—the University of Toronto. Queen's University, McMaster University, and Western University—the following conditions of entrance to the First Year were unanimously agreed upon to take effect in 1923:

- 1. Candidates for admission to the Pass Course of the First Year will be required not only to have complete Pass Matriculation, but also to present additional evidence of fitness to profit by attendance on lectures in the University.
- 2. While each University must determine for itself what additional evidence it will in individual cases deem satisfactory, all the Universities accept the following qualifications as sufficient evidence to justify admission:
  - (a) Credit (50%) at the Honour Matriculation Examination in two of English, Latin, French, Algebra and Geometry, Greek or German or Spanish, Physics and Chemistry, or Biology.

#### OR.

(b) At least 75% at the Pass Matriculation Examination in each of any four of the twelve papers required; or at least 66% in each of any six of the twelve papers, with adjustment

from time to time as the results of the new organization of the Secondary Schools become more definitely known.

#### OR.

- (c) Certificate of having completed the course at an Ontario Normal School (in addition, of course, to Pass Matriculation).
- 3. No University will announce any lower qualifications as acceptable while there may be a general intimation that other evidence may be submitted for consideration and also that candidates of mature years may be admitted without other than Pass Matriculation standing.
- 4. Attention is drawn to the fact that candidates may be admitted to the Pass Course of the Second Year by presenting certificates of credit obtained at the Honour Matriculation or Upper School Examination.

In brief, then, there are five different avenues for entering the First Year in an Ontario University; first, with at least two Honour Matriculation subjects in addition to Pass Matriculation; second, with Pass Matriculation including 75% in any four papers; third, with Pass Matriculation including 66% in any six papers: fourth, with a Second Class professional certificate in addition to Pass Matriculation; fifth, as a student of mature years with Pass Matriculation only.

A careful study of the above regulations will show that 2(b) was quite obviously adopted so that the small Continuation Schools of the Province will be just as well able to prepare students for the Universities as will the larger High Schools and Collegiate Institutes. This is the answer to any suggestion that the changes might involve increased cost.

Nor do these regulations involve the expenditure of any additional time. The clause already referred to does require that the student work hard enough to secure a really good standing on his year's work. Hence this clause is really aimed at "loafing." Another advantage of this same clause is that, should a student fail to secure the necessary standing at his first attempt, he can continue for another year in the home school.

Clause 2(c) exemplifies the purpose of the whole change, viz.: that the mature student is sought. A teacher, or one who has completed the work necessary for a Second Class professional certificate, needs nothing in addition to Pass Matriculation except his teacher's certificate. Hence it is obvious that the mature student is the student that the University wants. Clause 3 is an additional indication of the same desideratum. Undoubtedly the change is in the interests of democracy. It is intended to protect the interests of the youth of the Province by making it worth their while to study hard while they have the opportunity. It involves no additional

cost to the average parent, no increase in the length of the course. In brief, this increase in standard is just such a regulation as any sensible parent would make who saw that his children were not studying as well as they should. Any University, no matter how large it may be, welcomes students of the industrious type.

It is, perhaps, only natural that new entrance requirements should, at first, be subject to a certain amount of criticism but it is felt that, when the new scheme is thoroughly understood, it will meet with the unanimous approval of all who are interested in the welfare of education in this Province. Readers of this bulletin are invited to study its contents careful y and, should any point be not clearly understood, to write to the Department of University Extension, University of Toronto, for any further information that may be desired

## Cancer

#### A MENACE TO THE INDIVIDUAL

Cancer is of greater frequency at ages over forty than tuberculosis, pneumonia or typhoid fever.

One woman in eight and one man in fourteen over forty years of age dies of cancer. Cancer respects neither race, creed nor social position.

It is the common enemy of all mankind. It attacks rich and poor alike.

#### ITS LOCAL BEGINNING

Cancer is almost invariably at first a local disease.

It is easily cured if promptly recognized and at once removed by proper treatment.

It is almost always incurable in its later stages.

#### THE DANGER SIGNS

The disease usually begins in some unhealthy spot or some point of local irritation.

In cancer on the outside of the body there is something to be seen or felt, such as a wart, a mole, a lump or a scab, or an unhealed wound or sore. Pain is rarely present.

Cancer inside the body is often known by symptoms before a lump can be seen or felt. Constant indigestion, with loss of weight and change of color, is always a danger sign.

The early and hopeful stages of cancer are usually painless.

#### WHAT YOU SHOULD DO

Fear the beginning of cancer!

Never be afraid to know the truth!

Any painless lump or sore appearing upon your body should be examined by your doctor.

By the time a cancer has become painful the test chance for its cure has passed.

But even a painful cancer can be removed permanently if it has not extended too far beyond the place where it began.

#### SEEK EARLY EXAMINATION

If you notice that a wart, mole or other "mark" begins to change in appearance or to become sore, go to a doctor and have it completely removed. DO NOT WAIT UNTIL YOU ARE SURE IT IS CANCER.

All lumps in the breast should be examined.

Increased flowing or discharge when the change of life occurs may be a danger sign. So is the return of flowing after this time.

Medicine which relieves pain does not have any effect upon the disease itself; it simply delays the proper treatment.

#### A MESSAGE OF HOPE

The only cure for cancer is to remove every trace of the disease. The only sure way to do this is by a surgical operation.

If taken at the beginning, the majority of cases of cancer are curable.

All cases will end in death if let alone.

Records of our best hospitals prove that the chances of cure are very high with early operation, and that these chances decrease with every day of delay.

Early diagnosis is therefore all-important.



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Vol. XXXIV

TORONTO, MARCH, 1922

No. 3

# The Canadian Dental Association, May 15, 16, 17, 18, 19, 1922

The choice of date of the meeting is excellent for many reasons. Like the 24th of May, the first real holiday after the Winter is over and the fine weather has come, the dental meeting fills a place for the man who has worked hard all winter. The roads will be good so that scores of dentists will be looking for an excuse to drive that new car a hundred miles or more just to try it out, or perhaps it may be a made over car that needs the trip as a test. The end of May in the smaller towns finds the people very busy both indoors and outdoors, giving an opportunity for the dentist to get away.

There is a special interest in this year's meeting because it is held in Toronto, the largest dental centre in Canada and in conjunction with the Ontario Dental Society, which itself has the largest attendance of any society in Canada. Many dentists and their wives will find it convenient to visit old friends in the city in which most of them spent their college days. Those who have to come a long distance can come to the convention without having it interfere with their regular holiday season, as in mid summer or mid winter.

Another attraction will be the house warming at the College.

For the past few years College authorities have put on a demonstration and clinic as well as a social evening including supper. This gives graduates and friends an opportunity to spend a few hours visiting the college and among themselves.

The meeting will be held in the King Edward hotel where ample accommodation for Exhibits, clinics, dining and sleeping can be

had under one roof.

There will be opportunity for those who wish to play golf to get a chance at many of the local clubs. The committee will be glad to put up those who so desire at some of the clubs. Dinner parties, balls, and picnics will fill in any spare time for those who wish to avail themselves of such opportunities.

The program itself is of unusual interest following the idea that direct technical and clinical teaching is more effective than

essays, and speeches.

Prominent clinicians who have to date consented to be present at the Joint Convention in Toronto next May, include the following:

Drs. W. T. Maves and H. P. Boos, of Minneapolis, who will present the work of their Clinic Club on casting and restorations.

Montreal University Dental Faculty Progressive Clinic covering third molar extraction, silver nitrate root canal treatment, and inlay work.

Dr. J. R. Blayney, of Chicago, will present a clinic and most complete records of clinical findings re root canal fillings.

Dr. Edouard Hall, of Kansas City, Root Canal Technique.

McGill University Dental Faculty—Indirect method of inlay casting.

Dr. Seccombe's Preventive Dentistry Clinic will present entirely new material this year.

Individual clinics by clinicians from Montreal, Hamilton, Toronto, and elsewhere.

We believe that you most certainly will NOT want to miss the excellent clinics presented by these men.

## The Incidence of Dental Caries

Among all the studies of dental caries what evidence is there which would indicate how long it takes to develop a cavity. Mr. Turner in discussing Mr. Broderick's paper on "the endescrine factor in the production of immunity and susceptibility of the teeth to caries," said that the least time required to produce a cavity on the buccal surface of a 1st. molar was nine months and at the abutment area two years. This is surely beside the mark. Teeth have been examined most carefully during pregnancy and new cavities found almost weekly. Artificial crowns have been made approximating

two sound teeth and in less than a year both teeth were markedly decayed and one pulp exposed.

The whole scheme of dental service to the school children of Cambridge, Eng., is to send them away from school with the full complement of permanent teeth without decay. Years ago when the service began 85% of the children left school having decayed permanent teeth, to-day 85% leave school with undecayed permanent teeth. This is a most enviable record which is not found in many private practices.

# The Earliest Man and the Latest Disease

The newest contribution to the history of human evolution, the Rhodesian skull, seems to be one of the most important finds vet made. It was obtained in a mine in southern Rhodesia along with some other human bones and very crude flint and quartz instruments; and, although in some features the most primitive of early human skulls, in others it has many points of resemblance to or even identity with the skull of modern man. The supra-orbital region is massive and gorilla-like, and the cranium is very flat on top; but the posterior portion is so large that the total capacity is about as great as that of a recent human skull. On the other hand, the massive muscle attachment ridges are of the most primitive type. The palate is well arched, there is great length of face, and the wisdom tooth is reduced in size as in modern man, a feature not found in other fossil skulls. In contrast to the Neanderthal man, who is supposed to have walked in a crouching position because of his curved femur, the Rhodesian man had a straight leg, wherefore it has been stated that this specimen represents the direct ancestors of modern man, the Neanderthal man representing a branching off from the main ancestral tree. For the medical man this new specimen has one particularly interesting feature, the presence of unmistakable evidence of dental caries and even of abscesses at the roots of the teeth. In discussing the subject of paleopathology, a few weeks ago, we commented on the fact that in ancient Egypt dental disease and arthritis deformans were even more prevalent than they are now. The Egyptian mummies are chronologically recent, as compared with the Rhodesian man. There surely can be little justification in attributing dental caries and alveolar abscesses to modern civilization overcooked foods or too much candy, in view of the testimony of our earliest known ancestor.

#### **CORRESPONDENCE**

#### The Mental Factor in Medicine

226, 8th, Avenue, East Calgary, Alberta, March, 6th, 1922.

Dr. A. E. Webster, M.D.—D.D.S.—L.D.S., Editor, Dominion Dental Journal, Richmond and Sheppard Streets Toronto, Ontario. Dear Doctor:—

Received the February Number of the Dominion Dental Jour-

nal in good shape, and reviewed the contents thereof.

"The Nostrums and the Public Health" by Arthur J. Camp, M.D. winds up with some very good advice, BUT I fail to see how this "American Medical Association" could under-take the task seeing "An unlimited scepticism is the part of a contracted mind, which reasons upon imperfect data, or makes its own knowledge and extent of observation the standard and test of probability. In receiving upon testimony statements which are rejected by the vulgar as totally incredible, a man of cultured mind is influenced by the recollection that many things at one time appeared to him marvellous which he now knows to be true, and he thence concludes that there, may still be in nature many phenomena and many principles with which he is entirely unacquainted. In other words, he has learned from experience not to make his own knowledge his test of probability."

An editorial in the "Medical Times" for 1872 says: "The question how mental influences may be practically applied, controlled, and directed for therapeutical purposes is certainly one well worthy the pursuit of the scientific physician."

Why is it that medical men have not sooner recognized the mental factor in disease and codified the laws relating thereto?

Dr. Schofield suggests "The limitation of the human mind, which, when it has spent a term of years in the steady study of one class of phenomena presented in medicine, finds it both painful and difficult to consider another."

The "British Medical Journal," of April 12th 1890, suggests as another reason, the inherent difficulty of the subject itself: "The influence of the mind on the body is a subject whose study involves so many of the fundamental and difficult problems in Nature, that it would be strange if it were popular amongst men whose aim is to be practical.

"Yet another authority suggests that the ignorance of the

medical man of the period as to the mental factors in medicine is due to four reasons:—

"1st, Want of instruction on the subject in medical schools.

"2nd, The difficulty of the study without teachers or text-books.

"3rd, The uncertainty of the utility of the knowledge when acquired.

"4th, The dread of being thought singular or old-fashioned." and I would add a fifth, namely PREJUDICE.

Dr. Shoemaker, of Philadelphia, says "That which is ignored in physiology is not likely to be admitted in pathology; what is never taught in the clinique is not often practised in the sick-room."

We are so far from knowing all the agents of Nature, and their various modes of action, that it would not be philosophical to deny any phenomena merely because in the actual state of our knowledge they are inexplainable. This only we ought to do: in proportion to the difficulty there seems to be in admitting them should be the scrupulous attention we bestow on their examination.

It is said that "a grain of proof is worth a pound of argument" and before I knew anything of mental healing, the so-called mental results obtained by people who had come to me for advice on other matters had often greatly puzzled me, showing me that our existing theories were insufficient to account for the results obtainable.

P. F. Size

# Massachusetts Dental Society

The fifty-eighth annual meeting will be held in Worcester, Mass., at Mechanics Hall, 131 Main Street, May second, third and fourth 1922.

A cordial invitation is extended to all members of recognized Dental Societies.

W. Vernon Ryder, Secretary, 175 Newbury St., Boston, Mass.

The next annual meeting of the American Dental Library and Museum Association will be held Monday, July 17th, at the Hotel Ambassador, Los Angeles, California.

The membership consists now of over forty dental libraries and trust that all dental institutions owning a library will join same.

In order for the Association to accomplish its purpose it will be necessary and an advantage to all dental libraries to be members. Any institution or individual interested in dental literature or history are eligible for membership.

B. W. Weinberger, Secretary.

#### Notes

Dr. J. H. Greenfield was elected President of the Manitoba Dental Association at the Annual meeting in Winnipeg Jan. 1922. Members of the board elected H. A. Croel, J. F. Tay or C. P. Baiming, H. E. Christie registrar and Treasurer.

The members of the dental profession of New York state banquetted Dr. Agustus S. Downing Superintendent of Education.

It is said that the children of Toronto as found by a survey of the public Schools are lighter and taller than those of the United States.

Dr. Ida Montgomery of Vancouver B. C. died of pneumonia Feb. 17, 1922. Dr. Montgomery came originally from Walkerton, Ont. She attended the Royal College of Dental Surgeons of Ontario, but took her final year in dentistry in the North Western University, Chicago, from which she received her degree.

Five children of the Oakville schools had good teeth out of a class of 51. This is about the average in uncared for pupils.

The Maritime Dental parlors were destroyed by fire, Feb. 13, 1922.

Dr. Harry S. Thompson, director of Dental research in the University of Toronto, is on a trip of dental Education n Western Canada.

Dr. W. T. Wood, a graduate of the R. C. D. S. 1894, who has been in practise in Brooklyn, N. Y., for many years, died at Greenwood, Pickering Township. Interment took place in Toronto, Feb. 22, 1922.

The courts of British Columbia are taking every opportunity to not only reduce the fees of professional men who come before them but also to make caustic and uncomplimentary remarks about such charges. Dentists have had their share of publicity in this regard during the past few weeks.

- FOR SALE Campbell-Coolidge X-Ray Unit, 65,000 volt, 3-5 spark gap, 30 milliamperes, nearly new, and in perfect condition. Cost over \$1,000. Will sell for \$550. For further particulars, address Box 577, Cornwall, Ont.
- FOR SALE—Ritter Dental Lathe—A. C. 110-60; in excellent condition. Apply J. D. Brown, 647 King St., East, Hamilton, Ont.
- FOR SALE -- Dental practice, fully equipped, modern office. For further particulars apply to H. MacCrostie, Westaskiwin, Alta.
- FOR SALE—\$5,000 practice. Good town and best district in Alberta. No opposition. Bargain. Address A. T. I. N., c/o Temple Pattison Co., Edmonton, Alberta.
- SUITES TO LET Two and six rooms respectively, suitable for surgeons or dentists. Unexcelled situation—newly decorated, moderate rental. 151 Bloor Street West: Telephone North 6800.

# Dominion Dental Journal

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#### ORIGINAL COMMUNICATIONS

# A Clinical History of Post-Operative Sequelae

H. S. Percival, D.D.S., L.D.S., Toronto

Perhaps there is no better way known by which one may learn than by experience, either his own or those of his colleagues and no better method is in use to-day of teaching certain subjects than relating actual happenings along the line of these subjects.

If there could be more open discussion of actual cases occurring in the carrying on of the dental profession, much good might be done in this world and a greater service rendered mankind and after all, this indeed must be the guiding factor in a professional man's aims and ideals if he were to live the kind of life which he knows is his duty to live and out of which he shall eventually derive the most pleasure and benefit.

This case was one which was bound to arouse considerable interest sooner or later through the many and varied complications which seemed to assert themselves following treatment.

For many weeks patient suffered from lack of appetite, decided depression of spirits, loss of sleep, nervousness and irritability. Finally, while at his daily work a collapse came with loss of consciousness for some time. On the advice of Dr. A. E. Webster, he took a complete rest from Dec. 8, 1921 until Jan. 8, 1922, when he became aware of severe pains in the lower jaw extending from temperomandibular joint to an area about the anterior teeth. Region of the third molar was very sore to touch and a lump appeared on internal surface of mandible in region of third molar—

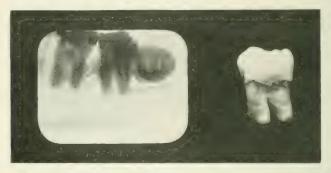
An X-Ray picture quickly showed the third molar lying in a perfectly horizontal position, at right angles to long axis of mandible with the occlusal surface lying directly facing the tongue.

On Jan. 13 an operation was performed by no less able a specialist than Dr. E. W. Paul who used conductive anæsthesia in the removal of the tooth. A peculiarity of the case was that the patient seemed to be to a more or less degree, non-susceptible to novo-cain

and, in an effort to produce anæsthesia it may be that more anæsthetic was injected than is usually required which fact may or may not have had something to do with the after-effects.

Jan. 13. Patient went to bed immediately in an exhausted condition, swelling taking place very rapidly in large area. This became alarming after eight hours because of intense pain and difficulty of patient to gain his breath. Swelling extended from region of buccinator muscle downward as far as the aesophagus and posterior to steruo mastoid muscle and upward to region behind the ear.

Jan. 14. Temperature reached 102 1 5 accompanied by excruciating pain which could only be relieved by use of strong sedatives. Swelling remained constant.



Radiographs which show the third molar in position and after extraction.

Jan. 15. Temperature fluctuated, condition remaining practically same as previous day.

Jan. 16. Temperature reached 1033<sub>4</sub>. Physician called. Temperature reduced by different methods to 1011<sub>3</sub> that night.

Jan. 17. Temperature reduced to 100½. Very severe pain still present. Entire swollen area with exception of region of buccinator muscle; changed to an extremely hard area, indicating, in Dr. Paul's opinion, the presence of pus, and formation of an abscess.

Specialist and physician watched closely for indication of "poittling" of abscess, but no sign came in the days to follow.

Meanwhile, beginning from the third day after the operation, a close watch had been kept on the patient's body to discover the nature of the rash which had come out and which remained until about the sixth day. Specialist called it a purely septic rash due to general blood stream infection. Physician believed it to be a rash characteristic of an exanthematous disease.

No subsiding of hard area was noticed until about the eighth day. Patient received then his first nourishment; prior to this time he was unable to swallow anything because his throat was shut completely from the swelling.

During these days the socket had been twice daily washed with syringing out with sterile warm water. Each time that socket was syringed, there would be a taste in patient's mouth which seemed much like pus although no pus was actually seen.

From this time on patient gradually recovered although he was extremely weak for many days after he first got up. Patient had lost weight considerably, going from 135 lbs to 115, a total loss of 20 lbs in about 20 days.

This clinical history of the case is given in detail in order that all phases of the question may be considered.

#### (1) Cause of patient's condition before operation.

In this regard the matter cannot here be touched on in detail but it is needless to say that every indication seemed to point to the third molar as the chief factor in the undermining of the patient's health. This is more strongly emphasized by the fact that the patient regained a remarkably good appetite. Spent very comfortable nights and began a complete recovery very quickly when his strength began to return for in two weeks he had gained ten pounds in weight again, after the tooth was removed.

#### (2) What was cause of infection?

There is no possible doubt but that the case was one of infection but there is room left for a wide variance of opinion as to where that infection gained its foothold. There is not one single possibility that the infection was introduced during the operation because it was done under strictly aseptic conditions. Of course there is always the possibility of infection entering the incision from the mouth after the operation because it is impossible to sterilize or keep the mouth sterile. The writer is of the opinion that the infection did not enter the system from the outside. His opinion is that due to the lowered vitality of the local area from trauma, shocks and loss of blood, pyogenic organisms found an easy lodging place and suitable conditions for growth. Here they reproduced themselves sending their porsous and end products into the blood stream which may have caused the septic rash mentioned above.

In conclusion the writer wishes to submit that, although this article has been poorly handled, he would be greatly pleased if any further discussion and study of the case could only reveal some enlightening features which could be handled in such a way that some fellow man may be given some relief from a similar disturbance or may completely avoid the unpleasantness of such ill after effects.

# Discoloration of Gums and Mucous Membrane of the Mouth

P. E. M. Donald, B. Sc., Toronto

In treating the subject of discoloration of gums and mucous membrane of the mouth or oral cavity, it becomes at once almost permissible to add—"by the action of poisonous agents" either as solids, liquids or gases.

While certain "discolorations" are present in the various stages of Periclasia, they are for the most part, quite apart from the distinct discolorations arising from certain poisonous agents. For this reason let us discuss the subject of poisons a little before considering those agents exhibiting a toxic action.

WHAT IS A POISON? One authority says, it "is a substance which is able chemically to act on an organism in such a way that it effects a permanent or transient injury to its organs and functions; an injury consequently to the health and well being of the person affected." Other authorities extend the boundaries of this definition, but "a substance capable of being taken into any living organism and causes, by its own inherent chemical nature, impairment or destruction of function" seems quite adequate.

A classification of the poisons is necessary if we are to intelligently understand the particular action of each—especially on the superficial tissues as now under consideration. A very detailed classification is given by Blyth, and also Kobert, but for the present discussion the following seems sufficient.

First Superficial. This causes anatomical lesions, such as irritations, corrosions etc.

Second Blood Poisons. These change the constituency of the blood when absorbed by it such as hæmolytic action.

Third—Poisons with definite internal action. These are the ones which act on the organs or tissues in a specific manner.

N. B. It should here be noted that some poisons exhibit all three tendencies.

A poison may be absorbed by the system either as dust in fine particles (solid) a liquid, or gas by the lungs, alimentary tract or the skin. The manner in which it may gain access is of utmost importance, and may be described as follows:

Through the skin, it gains access by means of being dissolved in the secretions of the skin or wound, and then absorbed in solution. Those poisons which are capable of dissolving the fat of the skin are so absorbed. Liquids may break down the resistance of the skin covering, causing an inflamed surface which is raw. All poisons enter more easily by mucous membrane as its resistance is weaker. This

is a particularly important factor when considering the mucous membrane of the oral cavity. The quantity of poison absorbed determines the effect. Every poison is without effect if assimilated in correspondingly small quantities. There is consequently a minimum dose of a poison, which can only be ascertained and specified, when the qualitative properties and weight of the organism are considered: therefore its relative value. The strongest effect is destruction of life function of organism; concentration is a large factor as well as time of absorption.

There are two very important divisions to poisoning which may now be mentioned i.e. CHRONIC poisoning, and ACUTE poisoning. The former arises from the gradual and repeated absorption of small quantities producing slow on-set of symptoms; while the latter arises from a sudden absorption of larger quantities.

Some poisons act so quickly (as for example gases and liquids) that a subject is powerless to avoid their onslaught. Some come unnoticed such as odorless gas and poisonous liquids, on the skin. Susceptibility should also be mentioned in referring to the action of any poison on the subject.

If a patient is exposed to repeated contact with poison he becomes increasingly *susceptible*, (not immune as might be expected such as contact with vaccine) therefore acclimatization is impossible. Innate hyper-sensitiveness of the individual toward a poison is called an idiosyncrasy.

Gases are most quickly absorbed, and all elimination is affected by the kidneys, intestinal tract and respiratory organs. It is important to remember that a poison absorbed may have a CUMULATIVE effect in the body. Some undergo in the organism chemical change, through which poison is lessened or increased, as for example in the oxidation of benzene into phenol; organic poisons and their final end products—carbonic acids, water etc.

This general discussion should lead to a better understanding of the fundamental action of poisons on the system. Each poison has some further peculiarity all its own, which will be dealt with in discussing each one separately.

Let us now deal with the agents causing discoloration; and also what environment is conducive to a condition of discoloration of the mucous membrane of a person subject to the influence of poison; and briefly note what change of surroundings or remedies are necessary to clear up any case.

The most important of all by far is lead. "Plumbism" is not only the most to be dreaded, but also the commonest, and the practitioner must ever be on the lookout in Industral clinics etc., or when practising near large industries for evidences of trouble in the mouth.

Particularly look for it among workers in lead, as in the plumb-

ing trade, house painters, colourists, type founders, type setters, artists, gilders, workers in arsenic, gold, and calico printers. Lead has been found by the analyst in most of the ordinary foods such as flour, bread, beer, cider, wines, spirits, tea, vinegar, sugar, confectionery etc. It has been found in drugs, especially those manufactured by the use of Sulphuric Acid the latter nearly always contains lead), and those salts or chemical products which (like citric or tartaric acids) are crystallized in leaden pans. Hence the extremely numerous ways in which lead may enter the system unnoticed.

Just two striking examples to show how manifold are the ways in which a subject may be affected. A baker used old painted wood in the construction of a baker's oven. No less than sixty people fell ill as a result. On another occasion a cabman had a drink of beer each morning at a certain saloon. The beer standing in the pipes all night became impregnated with lead and he fell ill to "plumbism."

On more than one occasion the British Government has taken definite action, as well as the governments of the other nations. A report from a departmental committee on the subject reported as follows:—

"It is known that if lead, in any form) even in what might be called infinitesimal quantities, gains entrance into the system for a lengthened period by such channels as the stomach, by swallowing lead dust; or through the medium of food or drink, by the respiratory organs as in the inhalation of dust through the skin; there is developed a series of symptoms the most frequent of which is colic. Nearly all the individuals engaged in factories where lead or its compounds are manipulated look pale, and it is this bloodlessness, and the presence of a BLUE LINE ALONG THE MARGINS OF THE GUMS close to the teeth that herald the other symptoms of 'plumbism.' A form of paralysis known as 'wrist drop' or lead palsy often affects the hands of the operators......"

This will give the dentist, and particularly the young practitioner, some idea of the importance of observing closely any discoloration of the gums in order to render the best possible service to his patients. Still further symptoms have developed among workers handling vulcanized rubber Taylors Princ. Med. Jurisprud.) and wrapping foods in tin foil.

An acute attack which is seldom fatal, in addition to having the usual blue line around the gums shows symptoms by a metallic taste, with burning and a sensation of dryness in the mouth, vomiting in about fifteen minutes, constriction in the throat, cramps, etc.. and a very sick patient.

In Chronic lead poisoning which may arise through the most unsuspecting channels as already mentioned we find general illhealth, disturbed digestion, lessened appetite, bowels confined, skin yellowish hue and the gums show a BLACK STREAK, from two to three lines in breadth, which by microscopical examination and chemical tests alike show to be sulphide of lead. Occasionally the teeth turn black.

Especially in females any symptoms of lead poisoning should be noticed as the most serious and extreme tendency to abortion is prevalent. M. Paul states that in four women habitually exposed to lead who had fifteen pregnancies between them; ten terminated by abortion, two by premature confinement, three went the full term, but one of the three children was dead, the second only lived twenty-four hours, and only one of the fifteen lived fully. The dentist will shirk his duty not to be able to diagnose a condition of lead poisoning when it presents itself.

Another source of lead poisoning is in drinking water; and especially in rural districts where well water is the source of supply. Pure rain water, neutral distilled water and pure snow will all erode lead, but do not materially dissolve it. The metal is detached in scales like iron rust, and is only slightly dangerous, but in low-lying districts as moorlands where there is apt to be acidity, found say where peat is found, often sulphuric acid due to bacterial action and contamination occurs.

The best advice for treatment is to keep the bowels open along with removing the cause and drinking lots of water.

Another poison, COPPER, is somewhat similar in action to lead. Like lead it may enter the system in a multitude of ways, even our food, such as potatoes, carrots, beans, spinach, as well as most of the fruits, contain small quantities. Cocoa is particularly high in copper content.

It is often found in ærated waters, the tin lining of the cylinders having become corroded. Rain water off a copper roof finding its way into water supply often occurs. Preserved vegetables are dyed bright and attractive green, such for example as peas, beans, cucumbers etc. by boiling in copper vessels. Copper is used in the arts and in alloys and is a large constituent of bronzing powders.

In ACUTE copper poisoning we have definite, easily observed symptoms. For example, after swallowing a large dose of copper sulphate, there was (according to Maschka) a violent blue vomiting, thirst, constriction in the throat, coppery taste in the mouth. Patient was pale, edge of lips and angles of mouth were colored BLUE, as well as the surface of the tongue. In post-mortem appearance we find the mucous membrane of the mouth changed to a dirty brown color and easily detached.

In case of poisoning by rerdigris (subacetate of copper) and

found so frequently on cooking utensils and plated ware, besides severe systemic inflammation and distension we find the mucous membrane a DIRTY BLUISH GREEN color, affording valuable indications.

In CHRONIC copper poisoning there is a great resemblance to the symptoms for lead, and there is a marked GREEN line on the margins of the gums. Coppersmiths in an industrial plant might easily provide this class of patient. Corrigan found the gum line color, but describes it as purplish red. Workers in copper as for example such a plant as the Canadian Westinghouse at Hamilton Ont. might be found to exhibit a general black discoloration of the mucous membrane of the whole alimentary tract, resembling carbon.

Elimination takes place mainly by the excretory organs.

BISMUTH is used considerably in pharmaceutical preparations, and in the arts is found as alloys and solders. Calico printing and subnitræ as a paint (pearl white) also provide source of supply for this poison. Meyer and Stanfield found in researches that from Bismuth preparations especially where wounds are present (as in the mouth for example) there is a marked Stomatitis and salivation, loosening of the teeth, a *Black* color of the mouth and ulceration. Excretion is through the excretory organs.

Another poison is SILVER. It is found mostly as nitrate and oxide in medicinal preparations, and we also find it everywhere in the arts, as for example in hair dyes, marking inks etc.

ACUTE poisoning is rare, except where an unusually large dose would be taken by accident. CHRONIC poisoning is however more common. There is a peculiar and indelible color to the skin, the body becoming greyish blue to black color. The mucous membrane becomes inflamed (Gimpon) and there is a marked VIOLET line around the edge of the gums. After death particles like curd-like silver chloride adhere to the mucous membrane extending down to the serous coat. Silver nitrate causes a local whitening of the gums and mucous membrane.

MERCURY is so universally found in preparations and in the arts, that one is bound to find evidences of it in practice. Many patent and quack medicines contain mercury. If it is rubbed on the skin it is absorbed, and all the effects of "mercurialism" result; just the same as when by fumes the mercury is inhaled in finely divided particles, or from the corrosive salts.

No matter how mercurial poisoning is contracted we have resulting a very serious condition of the patient. The most marked symptoms are salivation and a BLUE LINE around the gums, foetid breath, and disorder of the digestive organs. Salivation has been so profuse that two gallons of saliva have been secreted daily.

alkaline in color, and with a bad odor. The teeth that are already carious decay rapidly, loosen and come out. The inflammation may extend to the jaws and necrosis of the bone set in. The stomatitis however is the most marked symptom. Abortion in females often results from absorption of mercury which occurs among women employed in making barometers.

IN ACUTE poisoning by a corrosive salt, such as mercury chloride, we have death following in from one to five days (F.A. Falck). The symptoms are a constriction and burning heat in the throat and the mucous membrane of the oral cavity becomes shrivelled and white (similar to silver nitrate). Treatment consists of inducing vomiting, copious albuminous drinks, white of eggs and milk. General condition should be strengthened without stimulation, baths given; electricity applied; etc. Post mortem appearances show the mucous membrane to have a remarkable black color, mottled with patches of a lighter line. In acute poisoning you have the escharotic whitening of the mouth, throat and the mucous membrane will be mostly destroyed altogether. The sulphide of mercury is thought to be the cause of the blackened condition.

A most striking point worth repeating is that externally applied, corrosive sublimate causes inflammation in the alimentary canal, almost the same in intensity as if the poison had been swallowed. Cases are on record where intense inflammation of the stomach and intestines has occurred and the mucous tissues being a SCARLET red swollen and with many vasations.

Every dentist should be in a position to notice the action and effect of this metal. When small doses of an unirritating preparation of the drug are given continuously, for a certain length of time, the first effects are observed in the mouth, for it has a selective influence on the jaws, gums and adjacent structures. There is produced an increased flow of saliva, fetor of the breath, redness of the gum margins, pericementitis causing soreness of the teeth when jaws are forced together. If the drug is continued condition becomes worse. In industrial centres constant watch should be kept. The cumulative effect of the drug is very great. Potassium Chlorate dissolved in ammonium water, used as a mouth wash, is good remedy for the loosened teeth. For necrosis of bone Cook and Mawhinney recommend 50% solution of phenolsulphonic acid. Morphin and tonics also aid.

ZINC has a marked action, i.e. local dehydrating any tissue with which it comes in contact, therefore intensely caustic in the chloride form. Death may follow its external use. The appearance after death due to poisoning which has occurred within a few hours of the mucous membrane of the mouth is a marked change in texture and white opaque color.

The only discoloration in IRON compounds to other than the tooth structure itself is to be found in the post-mortem examination, where the cavity of the mouth has the mucous membrane blackened by contact of the liquid and covered with a blackish layer.

CHROMIUM or CHROME compounds cause ulceration of the mucous membrane which is hard to heal, especially at back of mouth and tonsils, palate, and larynx. There is no antidote, but silver and silver compounds are used somewhat. There may be a gradual absorption giving a BLACK edge to the gums and darkening of the hair and nails followed by dark spots on the skin. In severe cases these coalesce, so the whole surface is blackened and glossy, due to the absorption of the reduced silver in the body. The dark coloring on the skin is due to the action of light.

ARSENIC, while one of the most powerful poisons known does not exhibit any marked effect on the mucous membrane of the oral cavity, except where it has been used to devitalize the pulp tissue. There is seldom any pain connected with the devitalization of the gum tissue, and here is where the great danger of extensive necrosis lies. The gum turns WHITE and becomes lifeless, and the tooth sore to percussion. In more severe cases the destruction of soft tissue, if unnoticed, goes on until the alveolar process between the affected teeth is lost together with one or two teeth on either side. Wash the tissue, and bring on hemorrhage and then flush with stimulating antiseptics.

ANTIMONY, like arsenic, has a deep penetrating power, affecting however the alimentary canal from the stomach onward for the most part. In post-mortem cases however we find ulcers and pustules and a general irregular appearance and a *dull grey color* with edges varying from brown to black.

ANDRENELIN, when applied to the mucous membrane, produces such extraordinary contraction of the capillaries and arteries as to diminish greatly the blood supply and tissue becomes blanched white. Death occurs from heart paralysis or arrest of respiration.

CANTHARIDES causes great inflammation and reddening of the mucous membrane of the mouth. The tongue is denuded of its epithelial layer and lips and mucous membrane are swollen.

PHOSPHORUS is a poison whose symptoms are seen in a necrosis of the lower jaw, commonly known as "Fossy Jaw.' Adami and McRae refer to the appearance of an ulcerative stomatitis in which the gums become cedamatus and spongy. The jaw bone may be exposed and the ulcerative process becomes extensive. Ulcerative Stomatitis has its peculiar discoloration, and the mucous membrane becomes involved but the writer does not think the classification of phosphorus, with lead or copper for example, to be quite the

proper procedure in a discussion of discoloration. Buckley states "the dominant action of phosphorus is upon the osseous system" (p 187).

AMMONIA when applied to the unbroken skin does not have same intense action as potash, nor does it coagulate albumen. Blood mixed with it becomes dark red then darker and finally black or a dirty brown red. The oxygen is expelled, the hæmogloben destroyed, and the blood corpuscles dissolved. The albumen of the blood is changed to alkali-albuminate, and the blood itself will not coagulate, and the same remains in a fluid condition. General symptoms are irregular irritation, redness and swelling of tongue and pharynx.

CAUSTIC POTASH AND SODA cause the mucous membrane to become white--here and there denuded and the inflammation and erosion present.

Coming to a study of the TAR ACIDS we find CARBOLIC ACID (phenol) when applied to the mucous membranes blanches the surface white, causing a burning sensation which is followed by numbness. The part then turns a RED color, then BROWN, and eventually desquamation occurs. Due to its action in coagulating albumen, the degree is limited and becomes only superficial. Alcohol when applied neutralizes the caustic action and is the best remedy. Post mortem appearances show brownish wrinkled spots.

NITRO and AMIDO COMPOUNDS of the aliphatic and aromatic series (i.e. blood poisons which form mathæmogloben) have the characteristics of this series in the action on the blood. The exact action is as follows:— The normal oxyhæmogloben (blood coloring matter) is changed to methæmogloben into which Oxygen is so firmly combined that the internal exchange of gases necessary to life becomes impossible. Methæmogloben has a dark CHOCO-LATE BROWN COLOR and is clearly defined in the spectrum. Severe poisoning may be had by merely spilling on the skin. GREY BLUE discoloration of the mucous membrane, especially the lips, occurs—even before the subject feels unwell. The usual treatment is same as for other systemic poisons.

NITROBENZENE when inhaled induces especially formation of methæmogloben in the blood. Early discoloration of the mucous membrane and skin which assumes a BLUE or GREY BLACK is characteristic. Signs of asphyxia and convulsions follow an acute attack. Similarly DINITROBENZENE gives an early discoloration of the mucous membrane when inhaled as dust etc. and shows marked symptoms of poisoning.

NITROPHENOLS are most toxic and these have a characteristic GREY BLUE discoloration of the mucous membrane and CHO-COLATE BROWN color of the blood produced by methæmogloben.

TRINITROPHENOL (Pieric Acid) compound has a strong irritating action on the mucous membrane and when absorbed as for example in acid dust causes inflammation of the mucous membrane of mouth and air passages with a jaundice-like appearance or discoloration. A rash appears resembling that of the measles or scarlet fever.

#### BIBLIGRAPHY.

The sources of information have been as follows:-

- (a) Rambousek who has made a review of all the writings on this subject in a book.
- (b) A. Wynter Blyth has furnished some of the data re the conditions met with in the conditions in industries, etc.
- (c) Buckley gave some of the specific actions of the poisonous agents.
- (d) Encyclopedia Britannica.
- (e) Several books of reference and the current literature in the Dental College Library.
- (f) Prof. Henderson (U. of T.) in conversations.
- (g) Conversations with many individuals at the Dental College who had constructive criticisms to offer.

# The Necessity of a Dental Library

John F. Porter, Toronto

Upon conversing with older practitioners, we are informed that few new things are told, yet many different expressions are uttered, each new thought being turned and twisted about until the sound of these utterances seems so different from that heard before that we are apt to regard it as new. Often Dentists are called upon to address dental societies and write articles for magazines, then they wonder what has been said before and who spoke or wrote it. Only large libraries have the information. To write intelligently, the would-be-author must consult the records, so in expressing himself he will not repeat former writers except to give credit where it is due. If the dentist should express a new thought or give a new version of some known fact, he wants to go on record as the author of such fact, and that record should be so placed that all others may see it, and be guided accordingly.

There are very few dentists in practise who can afford to maintain such a library of dental journals as to cover the whole field of monthly or quarterly publications, for a number of years back and keep on adding to it, hence the burden must be carried by either National, State, or local societies, or by dental educational institutions. As the dental societies have no fixed abode, it necessarily falls to the lot of the dental schools to gather copies of all dental publications, be they annual, semi-annual, quarterly or monthly. Also copies of dental books published as text books for students or general reading for the profession. All these should be so arranged that one wishing to consult any author can readily find the articles required, and when found, there should be comfortable facilities to read and copy if necessary. This necessitates a large airy room, lined with shelves filled with complete volumes of all dental literature, dictionaries, lexicons and encyclopedias. ('hairs and tables should be so arranged as to be utilized. There should also be copies of standard charts, in fact every record available for study or reference. This necessitates a librarian who knows, in a general way, the literature of the profession a librarian who is deeply interested in the work and to whom the searching for certain required articles is a pleasure only satisfied when the desired information is found.

In Philadelphia prior to 1895 Dr. James E. Garretson did much to mold the lives of those students who came within the circle of his influence. He was fond of insisting that every student should own at least five books. These, he said, should be Gray's Anatomy, U. S. Dispensatory, Brown's Grammar of English Grammars, Burton's Anatomy of Melancholia, a Medical Dictionary. With

Dr. Garretson's system of Oral Survey, a student was then equipped to go on with his dental studies. From Dr. Garretson too came the old phrase "Go to the Books," which is as true to-day as it was then; and the continually going "to the books" day after day by students of the age and practitioners both young and old with receptive and retentive minds will recompense the individual for the time and work spent in following Dr. Garretson's advice.

Many Dental Colleges throughout the World are realizing more and more the need of dental libraries and are using their small libraries as a nucleus with the idea of adding to them from time to time. Among the foremost of these colleges is the Vanderbilt University School of Dentistry. It was discovered that there were many incomplete volumes of journals and precedings of special State organizations, and a plan was originated to arouse the interest of the Alumni, and friends of the College. Requests and petitions were sent out for all old journals, titles and dates. Those journals that were not needed could be readily exchanged for needed ones with other dental libraries. The Northwestern University School of Dentistry did practically the same. The Journal of the National Dental Association has been acting as a clearing house, so to speak, for the exchange of dental journals.

The Northwestern University Dental School, realizing the utmost importance of having a good library, has also made great strides in that direction. Their prospectus announcing the seventeenth annual post graduate course, contains the following paragraph. "In order to make the large and well organized library of the school serve the largest possible number, arrangements have been made by which the services of an expert dental abstractor are available for the entire dental profession. Dentists who are writing papers for societies, or who wish to study the literature of a particular subject may secure selected lists of articles at nominal rates, which will be supplied on application. This plan of furnishing reliable abstracts makes it possible for the dentist, who does not have access to a large dental library, to have placed before him in condensed form all of the information he desires."

During the past world war, it was clearly shown how urgently needed was good reading matter. If the war, then, did only one thing, it was to stir the people to think, and to think hard, about all sorts of questions. Such mental exercise has not been indulged in by the human race for generations.

The men who do big things differ from those who don't, chiefly in the activity of their minds. The big men keep up a continual mental struggle collecting and absorbing new facts, studying to understand them, trying to put two and two together—until out of this activity they hit upon good practical ideas which they see clear-

ly. No mentally lazy man ever had a really good idea. Good ideas are born in brains that keep working.

Of the many millions of men that were enlisted in the army, quite a large percentage could neither read nor write. Instructors were provided, and an earnest study was carried on in the different camps. These young men became students over night, as it were, and came home imbued with the desire for book learning. In the American and Canadian newspapers it was no common thing to see headings by the Knights of Columbus, Young Mens' Christian Association, Young Womens' Christian Association, and Red Cross asking for books for the soldiers. These organizations carried on in every camp from eight to twenty branch libraries. Magazines by the hundreds of thousands were sent to the Allied boys and were read by them. Some contained current topics while others were full of the latest research and knowledge of focal infection.

Dr. Harry F. Hotz in one of his articles quotes the following—
"A member of the Will-Grundy County Dental Society received his
commission on Friday, with instructions to report the following
Monday at Camp Pike, Little Rock, Arkansas. The writer had
the pleasure of being with this fellow worker when he turned the key
in his office door, perhaps for the last time, and I wish you all to
know the only things he carried out of his office were his dental books.
saying 'I will need them in camp.' Do you think our soldier boys
are safe in the hands of this lieutenant? I do."

It is claimed that Andy Carnegie as a boy when given the run of a rich man's technical library made good use of it so that he stored up the knowledge that he utilized so well in later years.

In this advancement of the times when so much is being done to educate the children of the masses more widely it is time for the dentists to fortify themselves, for the younger classes are the citizens of to-morrow and among their number are the chosen leaders. The older people are moving around in clubs, places of learning, sports and amusement places. Among the latter we have the moving picture houses which seem to entertain the largest percentage of the people; they act in many cases as good educators. The above things and hosts of others surely have an incentive value to the professional man to keep abreast with the times and do more reading. In this class we have the dentist.

There is only one way in which the dentist may keep in touch with the advancement of his profession, and that is by constant reading of the periodical literature in which is recorded from month to month the latest improvements and suggestions in the various methods of procedure. As a previous writer on this subject aptly expressed it "The periodical literature of dentistry is a serial story, an ever

unfolding record of dental achievement. Each installment whether it be a copy of a journal, a book, a pamphlet, or a report adds its incidents to the main trend of the story."

Dr. Hotz writes the following in the Dental Review. dental profession has long borne the stigma of being a non-reading profession. Before writing this paper I outline the making of a survey in one of the large office buildings in Chicago which is given over to the housing of many dentists. I was so depressed with the advice given me by my friends that I did not have the heart to go through with it—such remarks as these; 'Floor space is too valuable to have a desk, books and journals' 'Why, hardly a dentist would see you between the hours of nine to five, let alone take time to tell you how many journals he subscribes for, reads, etc.' Thank goodness, that membership in the Illinois State Dental Society brings two journals at least, to every member to-day, and two good journals—the Journal of the National Dental Association and the Dental Review, but a survey should be made and if dentists are subscribing and reading dental journals, let us stamp out that stigma that dentists are a non-reading profession."

The average dentist when asked what he does to keep abreast with the new ideas in the profession will usually answer, if he is like a few I have spoken to, "that he is too busy in his practice and too tired and mentally exhausted when the day's work is done to devote any considerable amount of time and energy to study." While on the other hand we have a few who subscribe for a few journals and either read them or cast them aside, but it might be said right here that if one only looks around and uses good sound judgment he will find the dentist who spends his spare moments reading current literature and up-to-date text books, is the one who commands the best practice. He does this because his work stands the test and the patients are not slow to realize the improvements he is bringing about in equipment and technique. These patients do not mind paying such a dentist a reasonable fee, for they are quick to realize the benefit.

The late G. V. Black who, as many claim, was the pioneer of Dentistry always set aside an hour each day for reading. There was no one more busy and no one more accomplished than he. Even to-day we have a lot of his works recognized and used in the dental colleges. He wrote books on dental pathology and operative dentistry that are still in use.

At present we have a host of new text books and old ones being revised. Among some of the important ones in use by up-to-date dentists are; Dewey's Orthodontia; Peeso's Crown and Bridge; Smith's Anæthesia; Brother's Dental Jurisprudence; Evans' Crown and Bridge; Hodgens' Metallurgy; Black's Operative and Pathology;

Davis' Operative; Brophy's Oral Surgery; Thomas' Oral Anæthesia: Jordan's Bacteriology; Adami and McCrae's Pathology; Turner's Dental Hygiene; Johnson's Success in Dental Practice; Gray's Anatomy; Wilson's Prosthetic Dentistry; Crane's Root Canal Technique; Long's Materia Medica; Ward's Operative Dentistry: Johnson's Operative Dentistry: Marshall's Operative, and hosts of others.

In the following quarterly and bi-monthly we have these journals;—The Dental Cosmos; The Dental Summary; Dental Digest; The Dental Research; National Dental Association; Dominion Dental; Oral Health; Northwestern Journal; Items of Interest; Dental Outlook; Dental Register; The International Journal of Orthodontia and Oral Surgery; Oral Hygiene.

Recognizing the need of publishing a monthly index of dental literature that will serve as an intelligent guide to the busy practitioner with limited time available for study, the National Institute of Dental Teachers some years ago persuaded the establishment of the Dental Index Bureau to devise ways and means of publishing a monthly index of periodical literature, after noting what a decided success the Dewey decimal system adapted to dentistry by Dr. Arthur D. Black was, when used in the historical booklet of the Illinois State Dental Society 1914. It contained a classified index of administration papers, discussions and clinics as published in the transactions of the Society from 1865 to 1914.

Dr. Black says "It is also hoped that the publication of this index by the Illinois State Dental Society will be of material aid in establishing it as the standard plan of the future in the indexing of dental literature. Good literature made easily accessible serves to strengthen the mind and hand of every progressive practitioner."

Upon reading my December issue of the National Dental Association Magazine, I noticed that an index of dental literature for five years 1911-1915 has been completed and is edited by Dr. A. D. Black. This contains an index to periodicals published in England, Scotland, Canada, Australia, New Zealand, and the United States. It is published by the Dental Index Bureau under the auspices of the American Institute of Dental Teachers. This is truly a wonderful thing to the profession in that it aids and saves time in looking up things.

When looking through some older magazines, I noticed that the first annual meeting of the Dental Library Association was held in New Orleans in 1919. Its purpose was the creating and fostering of dental libraries and museums. At the same time it brought about a closer relationship among those interested in the making of dental libraries and museums. A. F. Ishman was elected president and B. W. Weinberger, Secretary.

The general trend of feeling to-day seems to be moving towards formations of study clubs in Cities and Towns. Dr. Conzett dealt with this in his article that he read before the National Dental Association in August 1918, which was published just lately in the journal of that Association. The following are extracts from it. "The ideal study club is one which is composed of a small group of men drawn together with the desire to study the problems surrounding some special subject. The watchword of the modern study club is concentration -forgetting of all things until it and the problems surrounding it are mastered. In our study clubs we have advised, that they be not larger than twenty men, and if possible even smaller than that. These men to choose their subject and then obtain the services of some man that is a master of it and under his direction and guidance study it in a practical and theoretical manner until it is mastered in all its relations." "The Demonstrator recommends the necessary books for study between sessions and conducts quizzes upon the work that he has outlined at the time of the next regular meeting. In this way a taste for study is engendered that will not cease with the completion of the club work."

In the above paragraph the Study Club has proved the value of a good library and the help it renders the profession. It also proves to the backward dentist that he is slipping, and the great effect that reading of current literature and text books could have. If the books are hard to procure then the value of the library increases. Some men have small libraries of their own, but only wealthy men and Institutions can operate and keep abreast with the times with larger libraries.

In reading Dr. C. N. Johnson's book "Success in Dental Practice," we find clearly outlined the advantages and results attained in keeping up-to-date in the medium of a library. He says, "In approaching the records and bookkeeping the author realizes that he is assuming a herculean task in attempting to convince the dental profession of the necessity of keeping accurate records."

A library, as classified by Dr. N. S. Hoff of the University of Michigan, should contain; (1) Historic Literature; (2) Scientific Research; (3) Published Books; (4) Current Literature; (5) Portraits and History of Eminent Men of the profession.

The general custom in most schools, and one adopted by the Royal College of Dental Surgeons last year, is to require students to buy all text books used in course, and as far as they are willing to urge the purchase of other books on the various subjects. At present the owning of text books is made the requirement for admission at the above College. It has been proved that no student can do himself or his instructor justice who does not own and study his text

book along with his course. In some subjects there are several books written and it can hardly be expected that the student will have in his possession all approved text books on every subject in the curriculum. Therefore it becomes necessary for the College library to have a sufficient number of reference books not required on the course in its reading room, so that students may look up citations given by the instructor. This plan makes it possible for students to either withdraw them for home reading, or the constant attendance of a librarian and an open reading room.

Never more than now has the need of an adequate library with an attendant who is well posted on things pertaining to dentistry been demonstrated. Many of the boys in the Senior Class have been experiencing the greatest difficulty in getting enough subject matter together for their essays. This one thing has demonstrated fully the advantage of having a library for getting the desired information.

Every dental college should have, then, an extensive good working library. This is a necessity. It should be in charge of a capable custodian and should be kept up-to-date in every department. Every instructor should have enough interest in his department to have an active desire to use such a library and so keep himself up-to-date for the benefit of his students and the generation of a universal attitude of inquiry. Then better classification will follow, and more intensive use of our literature in the school should develop a closer relationship between the dental student and the practitioner. This will make the student realize what he is going to meet and be up against when he gets out into his practise. He will develop a broader view on the problems of life. The same may be said of our old practitioners who have been practising for some few years and have been falling behind. In their case never was a dental library more needed. It is to be hoped that the need of a good working library will soon be recognized by every active dental practitioner.

## Local Anesthesia of the Oral Cavity

J. Feinberg, Toronto.

In the minds of most persons, the dental chair is associated with pain and suffering. Fear of pain undoubtedly keeps a large percentage of patients from visiting dentists and maintaining the mouth in its proper condition. The demand for painless dentistry has been so insistent that various methods of anesthesia have been resorted to. Local anesthesia, when rightly practised and successfully used, is the most practical anesthesia for the majority of dental work. It has certain unquestionable advantages over nitrous oxide and oxygen for oral operations. Its objective, the relieving and limiting of pain, is recognized as one of the greatest boons to dentistry. With it dentistry has advanced fifty years at one stride.

Local anesthesia is defined as that term, applied to the results obtained, when sensation is abolished from any defined part of the body, by some agent or drug. There are two classes of local anesthetics: the refrigerants, which produce cold at the part to which they are applied, and the paralyzants which have a direct action upon the sensory nerve terminals. The refrigerants are not many in number and are not used so often, yet are indicated for certain conditions. There are numerous paralyzant drugs on the market, some of which can be used for any condition.

The refrigerants used in dentistry are confined to ethyl chlorid, ether, ether and alcohol, ice or the ice and salt mixture. Ethyl chlorid is used applied locally by means of a spray, the tissues soon becoming white and superficially frozen from the abstraction of heat. The drug is safe and convenient for minor operations, requiring but a single incision, as in the lancing of abcesses and boils or for the extraction of loose teeth. Ether or ether and alcohol in the form of a spray, are sometimes used for densensitizing dentine. Ice or the ice and salt mixtures have some field of usefulness upon accessible surfaces.

The paralyzants when applied locally have a direct paralyzant action upon the sensory nerve terminals. Of the various methods of technic which are associated with this type of drug only four methods are used for operations in or about the oral cavity: absorption anesthesia, infiltration anesthesia, interosseon anesthesia and conductive anesthesia. The method chosen depends upon the anatomical possibilities, pathological changes, the size of the field of operation and the time required. For the latter three methods paralyzant drugs are injected with a hypodermic needle and syringe. For absorption anesthesia very few instruments are required. A toothpick with cotton wound around an end; a pair of college pliers and a few pellets are really about all that are necessary.

For the other methods of anesthesia, however, there is an impressive array of syringes and accessory appliances on the market, many of which are more or less unnecessary for the average practice. The simpler the armanentarium the better will it be found for quick use, for sterilization and the maintenance of aseptic measures. In choosing syringes the consideration of sterilization is of vital importance. It is difficult to sterilize the old style glass barrel and leather-covered piston syringe; repeated boiling will soon cause it to leak and make it unfit for use. The safest and best practise is to keep the syringes and needles, when not in use, immersed in a sterilizing solution of about 70% solution of alcohol to which 1% of thymol and about 5% of glycerin has been added.

For intra-oral anesthesia the R. & R. Fischer syringe made of metal and glass is quite satisfactory. The Imperial No. 3 all metal syringe is also very good. Schimmel needles with short, concave, razor-edged points are employed. These are not soldered to the hub but are passed through it. When screwed into the syringe, the soft metal cone at the end of the needle is expanded and forms a non-leakable joint. Needles are manufactured in steel, pure nickel, gold and irridio-platinum. Steel needles have a disadvantage of rusting, and breaking during an injection. Irridio-platinum needles may be bent without much danger of breaking and may be, if desired, slightly bent and curved for use in the mouth.

For extra-oral injections, a Record or huer syringe of 5 c. c's capacity is used. The Record syringe is made of glass and metal but can be easily taken apart. The huer syringe is still simpler, being made entirely of glass, but the nozzle breaks easily. Both of these syringes can be taken apart and sterilized by boiling, but this may cause the disadvantage, previously mentioned, that of leaking. Irridio-platinum needles of various gauges and lengths should always be kept on hand ready for immediate use.

Boiling cups in which the solutions for injections are made also form part of the equipment. These are made of porcelain and come in three sizes containing 3 c. c's, 6 c. c's, and 10 c. c's. of solution. Other accessories are bottles for Ringer solution—a glass tray with cover for the novocain tablets and for the needles. A glass jar is sometimes used to hold syringes and cups but it is doubtful if it serves nearly so well as the sterilization solution previously mentioned.

The drugs used in local anesthesia are numerous, each possessing advantages and disadvantages. The most typical of all is cocaine. Obtained from the dried leaves of Erythroxylum coca, it has a history spreading over four hundred years. It did not however come into general use until the end of the last century. Its toxic effects became more and more evident and many fatal cases

were reported from even very small doses. It was found that it was contra-indicated in many cases and that many others had an idiosyncrasy for it. Scientists, therefore, endeavoured to discover a drug to replace the dangerous cocain so that a number of comparatively non-toxic local anesthetics were prepared,—viz:—Alpha and Beta—Eucaine, Stovaine, Alypin, Tropacocain, Anesthesin, Holocain, Quinine Urea Hydrochlorid, Apothesin and Novocain. The properties of these drugs vary. Most have their short-comings; some have an irritant action: others are almost as toxic as cocain; still others cannot be sterilized by boiling or the anesthesia produced is not satisfactory.

Probably the one which conforms mostly to requirements is Novocain. It is a synthetic product of complex composition, made in either tablet or liquid form. The former is much the more suitable for the dental office. The ordinary tablet contains: Procain 1-3 grains, Adrenalin 1-1300 grains and Sodium Chloride 1-12 grains.

Novocain is a white crystalline powder, readily soluble in water. It can be sterilized by boiling; it is readily absorbed by the tissues and is non-irritating. Its anesthetic properties are equal to cocain, but it is only one-seventh as toxic. It was introduced in 1905 after having been thoroughly tested by world-renowned anesthetists. Since then its value as a local anesthetic has been demonstrated by an enormous number of investigators and clinicians, in all branches of medicine and surgery.

The discovery that deeper and more prolonged anesthesia could be produced by injecting cocain into an anemic field and that the toxic effects were greatly lessened, was rendered practical when the physiological action of the extract of the suprarenal gland was discovered. The extract is gained from the suprarenal glands of the sheep and ox. The active principle occurs as a white crystalline substance which dissolves readily in salt solutions. It is made synthetically, known as suprarenin, surpassing the organic product on account of its purity, stability of action and greater durability. Besides intensifying the action of the anesthetic, it is a powerful cardiac stimulant and a vasomotor constrictor. The objection to its use is that it does not allow free hemorrhage, sometimes causing soreness.

An important factor in successful local anesthesia is that the solution be isotonic. If so, there will be no disturbance in the cell bodies, and metabolism will not be interfered with. If the solution be hypotonic body cells will give up some of their salts and a swelling of the cells will result. If the solution be hypertonic, the cells will be shrunken. Normal saline is used as a solution for anesthetic, but it is not possible to have a perfect isotonic saline solution because of the variation in the salinity of the blood of different individuals at

different periods of life. The average salinity is 0.6%. To make an isotonic solution dissolve one Ringer B. tablet in about 10 c. c's of distilled water. The Ringer tablet contains the following: Sod. Chloride 4-5 grains, Calcium Chloride 1-15 grains. Potassium Chloride 1-30 grains. A normal saline solution results when the above directions are followed carefully.

As mentioned before there are various methods of local anesthesia in or about the mouth. The simplest method is that employed in absorption anesthesia. This method is accomplished by the application of local analgesics or anesthetics to the surface. Its efficiency depends entirely upon the absorptive qualities of the tissues, to be desensitized. The usefulness of surface anesthesia is naturally very limited. It is necessary to guard against dilution of the anesthetic by the action of the saliva. The mucous membrane is first thoroughly dried. The utmost care is taken to exclude saliva, by isolating the part to which the application is to be made. An applicator is made by winding cotton around the end of a toothpick or a cotton pellet grasped firmly in the pliers serves just as well. The cotton is saturated with the drug and applied to the mucous membrane. The absorptive qualities of the mucous membrane can be increased by drying with compressed air.

Various drugs are used, requiring some three to five minutes to take effect. Tincture of aconite has a good local anesthetic action and has also some sterilization value. Procaine solution 10 to 20%, procaine crystals or powder are also used with good effect.

Sufficient anesthesia can be secured for painless fitting of bands; application of a rubber dam clamp, high up on the root of a tooth, the lancing of a subgingival abcess and the insertion of the needle for hypodermic injections.

A variation of absorption anesthesia is used in forcing a solution of cocain through dentin. Usually cocain hydrochlorid is used. The pressure is applied either by using unvulcanized rubber or guttapercha and a blunt instrument or by some instruments specially devised for this purpose. It is necessary to have a cavity with four walls so as to confine the solution under pressure. Pressure is applied slowly with an evenly increasing force so as to minimize pain. The patient, however, may experience a considerable amount of pain during application.

A very common method of anesthesia is the infiltration method. Anesthesia is produced by injection into the tissues about the nerve endings. The infiltration method is of advantage, in the extraction of non-vital teeth, roots and parts of roots. It has the greatest success with the single-rooted teeth. There are but two injections to consider with the infiltration method in dental operations, namely, the horizontal and perpendicular. The horizontal injection for the

bicuspids and molars excepting the third molar. By this method many teeth may be injected with only one puncture of the tissues.

The perpendicular injection is applicable for all single-rooted teeth. The needle should generally be inserted just below the gum margin. The solution is injected without pressure. The quantity of solution to inject is about  $1\frac{1}{2}$  c. c's. for the horizontal and about 1 c. c. for the perpendicular.

Intra-alveolar anesthesia is another method used to more or less good advantage. It has for its object the blocking of the nerve before it enters the pulp of an individual tooth, by injecting deeply into the alveolus. There are two different injections in this method, the pericemental and the interosseous.

The pericemental injection requires the minimum amount of drugs. The method is useful in surgery, in the extraction of teeth, due to the infiltration of the surrounding tissues. The needle used for this injection is short <sup>1</sup>/<sub>4</sub> of an inch and about twenty-eight gauge. Sometimes a slightly longer needle is used, of the same gauge.

The intra-osseous injection is of great value in operating upon vital dentine and pulp extirpation. It produces complete anesthesia of one or two teeth almost instantly. This method consists of first making a small submucous injection to anesthetize a small area of the gum. Then the latter and cortex of the bone are pierced with a suitable drill. Thru this opening a few minims of the solution are deposited and then slowly allowed to diffuse through the spongiosa of the bone.

Probably the most successful and most ideal method of producing local anesthesia is by the conduction method. By this method an injection is made into the vicinity of a nerve trunk, at a convenient point. Sufficient of the drug is absorbed to prevent it from conducting any impulses. A condition of regional anesthesia is thus brought about. The injection is made into loose tissue or a hony canal where the nerve enters or emerges. The injection is usually made at some distance from the field of operation, which lessens the acssibility of infection and tendency to pain after the operation. To the solution used for conduction anesthesia a certain Lercentage of suprarenin is added in order to secure a bloodless field of operation. About the face there are seven separate and distinct nerve blocking operations for regional anesthesia. These injections are as follows: Gasserian Ganglion, Spheno-maxillary, Pterygo-mandibular, Mental, Infra-orbital, Zygomatic and Posterior and Anterior Palatine.

The Gasserian and Spheno-maxillary injections are employed more for major surgical operations about the face. The latter injection is sometimes necessary in anesthetizing the bicuspid region by the conductive method. To do this, a special needle five cin. long

and a special curved hub are necessary. The insertion is made about opposite the mesial root of the upper wisdom in the buccal fold about one cm. away from the bone. When the needle has reached a depth of two cm. the bone will be reached. The needle is then directed upward and backward along the bone to a depth of four cms. Here is deposited about two or three c. cs. of the fluid. This requires the use of a large-sized syringe.

The Pterygo-mandibular injection is used for blocking the nerve supply to the lateral half of the mandible and the immediate overlying tissues. The pterygo-mandibular space is located between the internal pterygoid muscle and the internal oblique line. If the upper teeth are present an imaginary line may be drawn over their occlusal surfaces. At the point, where this line meets the internal oblique line, is generally the right location. A needle about 134 inches long is used. The needle is inserted gradually until the oblique line is passed. It is then swung to the buccal of the side injected and inserted about one cm. Some of the solution is deposited at this point to anesthetize the lingual nerve. Then insert for two cms. closely following the inner surface of the rames. As the needle progresses, the barrel is swung gradually to the median line. About two c. cs. of the solution is deposited. In the mandibular injection the first sign of anesthesia is a tingling sensation at the tip of the tongue.

The mental injection is used to block the nerves supplying the central, lateral, cuspid and first bicuspid. The mental foramen is located about midway between the upper and lower borders of the body of the mandible and at a point about midway between the apices of the first and second bicuspids, often nearer the latter. Insert a one-inch needle and force needle downward and forward for about one cm. Direct toward the bone and when in close contact with it, some fluid is injected. By massaging the tissues, absorption is encouraged. The solution has to pass through the mental foramen, as the nerve does not come to the surface.

The infra-orbital injection is used when anesthesia is desired in the upper incisor and cuspid region. The infra-orbital foramen is located above the canine fossa just below the margin of the orbit. The injection is made slowly, of about two c. cs. of solution. The gums are then massaged until a considerable portion of drug is absorbed by the nerve in the canal. This injection does not always give good results, so that it is not well recommended.

The Zygomatic injection is used to anesthetize the upper molar region. The needle is inserted just above the distal root of the second molar; then directly upward, backward and inward for about one cm. After the needle strikes the bone it is carried forward for another cm. About two c. cs. of the solution is deposited.

The Posterior Palatine injection is used to anesthetize the tissue on the lingual of molars and bicuspids. The needle is inserted above the gingival margin of the mesial part of the third molar and then passed upward and backward to the palatine process. About 1-3 c. cs. are injected: not more, as it may affect the throat.

The Anterior Palatine injection is used to anesthetize the palatal part of the gums in the incisor and cuspid region. The anterior palatine foramen is located about one cm. behind the central incisors in the median line. A fine four or five mm. needle is used and <sup>1</sup>2

c. cs. of solution is deposited.

Now for the practical side of local anesthesia. It has numerous applications in dentistry. In cavity preparation where much tooth tissue must be cut away, it is often employed. In crown and bridge work where there is an excessive amount of grinding; in pulp extirpation and in pyorrhea alvcolaris; in all these and numerous others, local anesthesia is used to good advantage. But the real advantage and most common use of local anesthesia is for the extraction of teeth, and similar surgical operations.

There are a number of precautions to be taken. Injections into a pathological field should be avoided, especially if suppuration be present, as infection might be carried into healthy tissue. Always the simplest and surest method is used. One must always guard against septic infection from any source. It is necessary to have the hands and the field of operation as nearly sterile as they can be made and to have the hypodermic syringe, needle and solution absolutely sterile. To prevent injecting air into the tissues, it is essential that all the air should be exhausted from the syringe before the injection is made. When the syringe is filled by drawing the solution into it, hold the point upward, tapping the side gently to dislodge the air bubbles. Then push the piston. The air is thus expelled.

Local anesthesia has many advantages over the general anesthesia. The whole question has been aptly summed up by Thoma

in one paragraph:

"With the modern methods of local anesthesia pain can be entirely controlled. A local anesthetic is preferable when the operation is to be performed in the office, eliminates the dangers attending general anesthesia. The absence of vomiting after the operation, the co-operation of the patient under the anesthetic and the fact that the field is almost bloodless are factors which facilitate the work of the operator."

In conclusion, possibly a summary would be in order. Local anesthesia has done wonders for modern dentistry; it has certain undoubted advantages over general anesthesia; it has hundreds of every-day applications in the dental office: it opens up an ever-widening field of usefulness and in all probability serves the public and dentist best, in what they desire most: "Painless Dentistry."

## Dental Prophylaxis

ROYAL COLLEGE OF DENTAL SURGEONS.

## 1. Definition;

By dental prophylaxis we mean the very thorough cleansing and polishing, by the dentist, of the surface of the enamel and of denuded root surfaces of teeth. This will include the removal of any deposits, stains or debris from those surfaces and the elimination by grinding of roughened enamel surfaces and of rough edges of faulty restorations when those defects are of small extent but most necessarily exclude those procedures generally recognized as being operations in operative dentistry or periclasia.

- 2. Reasons for Performing Prophylactic Treatment.
  - (a) To improve æsthetic appearance.
  - (b) To prevent disease of tooth tissue (caries)
  - (c) To restore or maintain the health of the tissues surrounding the teeth.
  - (d) To improve the general health.
- 3. When to perform prophylactic Treatment.

In simple cases when the operator has to consider the æsthetic appearance alone or even the removal of dental placques, the operation may be performed at or near the end of a series of sittings when polishing of fillings is being done but in cases where the health of surrounding tissues or the general health are involved the prophylactic treatment should be spread over a number of sittings and should be commenced at the first sitting.

- 4. Order of procedure.
  - 1. Spray out mouth with tepid water flavored with wintergreen in order to remove loose debris.
  - 2. Apply disclosing solution to enamel surfaces only when presence of dental plaques is suspected, otherwise omit this step.
  - 3. Remove deposits of salivary calculus with scalers. Deposits of serumal calculus may be removed by use of planes and files, care being taken in using them to avoid injury to soft tissue attachment or enamel or cemental surfaces.

To expedite the removal of deposits the teeth in each arch should be divided into three groups, the six anteriors the bicuspids and molars on one side and the bicuspids and molars on the other side and in order to avoid too much changing of instruments similar surfaces in each group should be scaled with the appropriate instrument before other surfaces are touched.

- 4. Grind rough spots on enamel with stones, and sand-paper disks.
- Polish enamel surfaces. This should be done with the 5. finest flour of pumice and tin oxide. The polisher slips over unclean surfaces easily, but gradually, as it reaches the clean enamel, the friction increases. For this reason hand instruments are preferred to the engine as the operator can make use of his sense of touch, so that the enamel may not be worn away unnecessarily. Coarser grades of pumice may be used when necessary on a roughened surface but this should afterwards be followed by the fine flour of pumice. The pumice should be applied where possible with wooden pegs held in a porte polisher or orangewood sticks. Surfaces inaccessible to these pegs or sticks may be reached by means of silk tape or linen strips. The pumice may be mixed with clean water flavored with wintergreen or it may be carried to the tooth surface by first wetting the stick, strip or tape and dipping it in the dry pumice. In using orangewood stick or peg be careful not to force pumice down into sub gingival space.
- 6. When deemed advisable remove any stains that may be left with H<sub>2</sub> O<sub>2</sub> and polish again those surfaces that were stained.
- 7. Flush away the loose pumice with abundance of tepid water applied with syringe
- 5. Frequency of operation.

Prophylaxis treatment should be performed as often as is deemed necessary. This will depend on past history of the patient as regards progress of dental disease and the intervals between treatments may vary from two to six months or even longer.

## Canadian and Ontario Dental Convention King Edward Hotel, Toronto

#### PROGRAMME

#### MONDAY, MAY 15, 1922

#### 9.00—12.00 REGISTRATION

2.00 OPENING, Invocation

Opening, by His Honour, Colonel Henry Cockshutt, Lieutenant-Governor, Province of Ontario.

Address of Welcome, C. Alfred Maguire, Mayor, City of Toronto. Address of President, Canadian Dental Association, Dr. H. F. Whittaker.

Address of President, Ontario Dental Association, Dr. F. P. Moore.

Business announcements.

- 4.00 PAPER: "Graphic Method of Partial Denture Design"..........
  W. E. Cummer, Toronto.

#### TUESDAY, MAY 16, 1922

- 9.00-10.30: 10.30-12.00 "Clinic." T. W. Maves, Minneapolis.
- 9.00—10.30: 10.30—12.00 "A Demonstration by Charts," H. P. Boos, Minneapolis.
  - at 9-10-11 "Prosthodontia," Detroit Clinic Club.
- at 9-10-11 "Crown and Bridge Work," Detroit Clinic Club.
- 9.00 -10.30: 10.30 12.00 "Root Canal Problems," Edouard Ha!l, Kansas City.
- at 9-10-11 "Preventive Dentistry and Dietetics," Wallace Seccombe and Associates.
- at 9-10-11 "Root Canal Treatment," J. R. Blayney, Chicago.
- at 9-10-11 "Ideal Denture Service," W. F. Chappelle, Buffalo. "A Graphic Method of All Partial Denture Designs," W. E. Cummer, Toronto.
- at 9-10-11 "Treatment of Pulpless Teeth with Silver Nitrate," J. Lane Charpentier of Montreal University Unit.
- at 9 -10—11 "Root Resection, Amputation and Canal Filling," C. E. Pearson, Toronto.
- at 9-10-11 "Indirect Method of Inlay Construction," A. S. Thomson, Toronto.
  - 12.30 LUNCHEON (Crystal Ball Room)
  - 2.00 PAPER: "Some Reasons for Failure in Modern Denture Construction," F. A. French, Edmonton.
  - 3.00 RESUMÉS OF THEIR CLINICS, (limit 15 minutes) T. W. Maves; H. P. Boos; Edouard Hall; Charles Lane; E. L. Giffen.
  - 4.00 EXHIBITS
  - 6.30 DINNER DANCE (informal) In the Crystal Ball Room.

#### WEDNESDAY, MAY 17, 1922

9.00-10.30: 10.30-12.00 "Clinic," T. W. Maves, Minneapolis.

9.00—10.30: 10.30—12.00 "A Demonstration by Charts," H. P. Boos, Minneapolis.

at 9-10-11 "Prosthodontia," Detroit Clinic Club.

at 9-10-11 "Crown and Bridge Work," Detroit Clinic Club.

9.00 10.30: 10.30—12,00 "Root Canal Problems," Edouard Hall, Kansas City.

at 9-10 11 "Preventive Dentistry and Dietetics," Wallace Seccombe and Associates.

at 9-10-11 "Root Canal Treatment," J. R. Blayney, Chicago.

at 9-10-11 "Ideal Denture Service," W. F. Chappelle, Buffalo.

at 9-10-11 "Bridge Work," Irvin H. Ante, Toronto.

at 9-10-11 "Cast Overlay Bridge Abutments, and Over-sized Inlays," Montreal University Unit.

12.30 LUNCHEON (Crystal Ball Room).

2.00 PAPER Illustrated, "Periodontal Pathology Due to Traumatic Occlusion," Tom Smith, Langdon, N.D.

3.30 DRIVE AROUND THE CITY

4.00 EXHIBITS

5.00 8.00 RECEPTION AND BUFFET SUPPER Royal College of Dental Surgeons.

CLASS REUNIONS

#### THURSDAY, MAY 18, 1922

9.00-10.30 "Clinic," T. W. Maves, Minneapolis.

9.00 10.30 "A Demonstration by Charts," H. P. Boos, Minneapolis.

at 9-10-11 "Prosthodontia," Detroit Clinic Club.

at 9-10-11 "Crown and Bridge Work," Detroit Clinic Club.

9.00-10.30 "Root Canal Problems," Edouard Hall, Kansas City.

at 9 10 11 "Preventive Dentistry and Dietetics," Wallace Seccombe and Associates.

at 9-10-11 "Root Canal Treatment," J. R. Blayney, Chicago.

at 9-10-11 "Ideal Denture Service," W. F. Chappelle, Buffalo.

at 9 10 11 "Inlays," O. S. Clappison, Hamilton.

at 9-10-11 "Periodontia," A. J. McDonagh, Toronto.

at 9 10 11 "How to Make a Dental Examination and Diagnosis," A. E. Webster, Dean R.C.D.S.

at 9 10 11 Demonstration: "Different Methods of Inlay Preparation and Construction," J. W. Ingram, Toronto.

12.30 LUNCHEON (Crystal Ball Room).

2.30 EXHIBITS

6.00 7.45 DINNER Hart House. Canadian Oral Prophylactic Association.

8.00 PUBLIC MEETING, Oral Hygiene, at Convocation Hall.

#### FRIDAY, MAY 19, 1922

9.00-10.30 "Clinic," T. W. Maves, Minneapolis.

9.00 10.30; 10.30 12,00 "A Demonstration by Charts," H. P. Boos, Minneapolis.

at 9-10-11 "Prosthodontia" Detroit Clinic Club.

- at 9-10-11 "Crown and Bridge Work," Detroit Clinic Club.
- 9.00 10.30: 10.30 12.00 "Root Canal Problems," Edouard Hall, Kansas Citv.
- at 9 10 11 "Preventive Dentistry and Dietetics," Wallace Seccombe and Associates.
- at 9-10-11 "Root Canal Treatment," J. R. Blayney, Chicago.
- at 9-10-11 "Ideal Denture Service," W. F. Chappelle, Buffalo.
- at 9 10 11 "Inlays," O. S. Clappison, Hamilton.
- at 9-10-11 "Periclasia," H. K. Box and W. G. Trelford, Toronto.
- at 9-10-11 "Cast Inlays by the Indirect Method," McGill University
  Unit.
  - 12.30 LUNCHEON (Pompeian Room). Business.
    - 1.30 GOLF TOURNAMENT, Scarborough Golf and Country Club.

#### ENTERTAINMENT

Everyday at noon, except Monday, a Luncheon will be given in the Hotel at which will be an Orchestra, Community Singing, Speakers and Soloists.

Monday. The Xi Psi Phi Fraternity members will be interested in their Re-union Dinner on Monday night at Hart House.

Tuesday. An enjoyable feature will be an Informal Dinner Dance in the Crystal Ball Room of the Hotel on Tuesday Evening. The Committee looks for a large attendance. Come and enjoy yourself.

Wednesday afternoon a drive around the City has been arranged. Motors will be provided and points of interest, including the new harbor development work, will be visited.

From 5 to 8 of the same day a Reception and Buffet Luncheon will be held at the College—the "Annual Home-Coming" feature, and a most enjoyable one.

Class Re-unions have been arranged for later on in the evening. These re-unions are of growing interest and no other functions will be arranged which will conflict with these enjoyable gatherings.

Thursday evening at 6 the Canadian Oral Prophylactic Association will hold a dinner. At 8 a Public Oral Hygiene Meeting will be held in Convocation Hall.

Friday afternoon there will be a Golf Tournament at Scarborough Golf and Country Club. All members of golf clubs are urged to come prepared to take part in the Tournament.

#### LADIES' ENTERTAINMENT

A Reception Committee will be on hand Monday morning to informally meet the visiting ladies. Drives, luncheons, teas and other forms of entertainment are being arranged for by the following Ladies' Committee:

Mrs. W. B. Amy, Convener; Mrs. A. E. Webster: Mrs. W. Seccombe; Mrs. R. G. McLean; Mrs. J. A. Bothwell; Mrs. C. E. Brooks; Mrs. W. L. Chalmers; Mrs. A. D. A. Mason; Mrs. F. C. Husband; Mrs. A. J. McDonagh.

The Committee desire to know approximately how many ladies will be present, so that they may make the best possible provision for their entertainment. To assist them in this endeavour, kindly see that the last line of the return clinic card is filled in.

# INFORMATION, RULES AND REGULATIONS. GOVERNING DENTAL EXHIBITS.

Location: King Edward Hotel, Toronto, Ontario.

Price of Space: Will be \$5 per foot frontage. Minimum space sold is 6 feet.

Terms of Payment: 25% of the rental on application. The balance must be paid before occupying the space, May 15th.

Allotment of Space: Plans of the exhibit space will be furnished on request, and as nearly as possible choice of space will be made in order of receipt of applications and cheques.

· Owing to the shape and nature of the exhibit space, however, the Exhibit Committee reserves the right to place the exhibits to the best advantage of the space.

Exhibitors will have their stands and exhibits in complete and proper shape by 12 a.m., Monday, May 15th.

The space will be available for exhibitors to place their exhibits, Sunday afternoon, May 14th.

Arrangement of Exhibits: As far as possible exhibitors will arrange their exhibits in such a manner that they will not obstruct the general view or hide other exhibitors.

The placing of all signs and advertising matter shall be subject to the approval of the Exhibit Committee.

All aisle space is under the control of the Exhibit Committee and shall not be used for exhibit purposes.

Hours of Exhibits: The Exhibition will be open 1 p.m. to 6 p.m., Monday, May 15th, and 9 a.m. to 6 p.m. daily till Friday, May 19th, when the final closing hour for the meeting will be 1 p.m.

Removal of Goods: No exhibitor shall remove his exhibit until the close of the Exhibition, Friday, May, 19th at 1 p.m., without the consent of the Exhibit Committee.

Electric Connections: The current is 110 volt direct current.

No electric connections shall be made or wiring done without the approval of the management of the King Edward Hotel and Exhibit Committee.

X-Ray Equipment: All X-Ray equipment must be dead.

Safety First: All decorative material must conform to the requirements of the Fire Department and Insurance Underwriters of the city of Toronto.

Responsibility of the Dental Societies: The Canadian and Ontario Dental Associations will not be responsible for any loss or damage to goods consigned to their care.

The Dental Associations will not be responsible for any injury or damage that may happen to the exhibitor or his employees, or to his property, from any cause whatever, prior, during or subsequent to the period covered by our space contract, and the exhibitor, on signing our contract, expressly releases the Dental Associations from and agrees to idemnify them against all claims for such loss, damage or injury.

Care of Building: Exhibitors will be held responsible for any damage done to the building by them or their employees. No tacks, screws or nails shall be driven into the walls, woodwork or floor of the building.

Watchmen: Reliable watchmen will be provided to guard the exhibits at night, commencing Sunday night and continuing through each night to and including Thursday night, May 18th.

Tables and Chairs: Kitchen tables and chairs will be furnished

on application.

Admission Badges: Admission Badges will be provided for all

exhibitors and their employees.

Registration: To facilitate the distribution of mail, delivering of telegrams, etc., the committee requests that all exhibitors and employees register at the registration booth, giving temporary and permanent address and telephone number.

Visitors to the exhibits are welcome, but must first register as

such.

Consignment of Goods: Goods shipped in by express or freight, must be prepaid and should be addressed—

THE CANADIAN AND ONTARIO DENTAL ASSOCIATIONS,

KING EDWARD HOTEL, TORONTO, ONT.

All goods should be marked with the firm name of the exhibitor. All goods arriving prior to May 15th, will be placed in the King Edward Hotel storage rooms until the exhibit space is available.

Customs: Official permission to hold the exhibit has been obtained from the Collector of Customs and Excise, and special arrangements made.

The arrangements have been placed in the hands of Wm. Harper, Customs Broker, 39 Wellington St. W., Toronto, and instructions will be sent with contracts.

All points not covered are subject to the decision of the Exhibit Committee.

For any information not contained in this folder, address

E. L. GAUSBY,

CHAIRMAN EXHIBIT COMMITTEE, 114 CARLTON ST., TORONTO.

## Tranpsortation Arrangements for the Los Angeles Meeting

Summer tourist tickets available for this convention will be on sale daily, May 15 to September 30, 1922, inclusive, permitting stop-over at any point en route within final return limit of October 31.

On account of the reduction in fares for the coming season over those in effect last year the railroads are delayed in the announcement and the fares cannot as yet be quoted, except from a few principal points in western territory.

The following fares to Los Angeles and return have been defin-

itely decided

acciaca.		
From	Direct Routes	One Way via
	Going and Returning	Portland or Seattle
Chicago	\$86.00	\$104.00
Kansas City	72.00	.90.00
Omaha	72.00	90.00
St. Louis	81.50	99.50
Memphis	85.15	106.28
New Orleans	85.15	114.08
St. Paul	87.50	97.75
Minneapolis	87.50	97.75

Correspondingly low fares will be on sale from all points in the United States and a more extensive tariff will be published as soon as available.

For the accommodation of those attending the meeting, the Transportation Committee has completed arrangements for the operation of two official special trains from Chicago, which will afford a choice of routes with a variety of entertainment and scenic points of interest.

You will note from the schedules that both trains will leave Chicago the same evening, arriving the same hour at Colorado Springs, where a most enjoyable day will be spent by the entire party.



#### EDITOR:

## A. E. Webster, M.D., D.D.S., L.D.S., Toronto, Canada. ASSOCIATE EDITORS:

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BRITISH COLUMBIA-H. T. Minogue, D.D.S., L.D.S., Vancouver.

Vol. XXXIV

TORONTO, APRIL, 1922

No. 4

## Dentists as Members of Medical Societies

Some of the largest Medical Societies have had Dental sections for many years, while others have not done anything in this respect. The American Medical Association has a Dental Section whose members must hold the degree of M. D. In Great Britain such members as hold the medical qualifications may belong to the Royal Medical Society. In Canada there has been no general acceptance of dentists into Medical Societies, except by way of the medical degree.

In 1907 the Academy of Medicine was organized in Toronto and in the By-Laws appears this section. "Any qualified, regular Medical practitioner or any one engaged in teaching or research work in medicine or allied sciences resident in Toronto or its suburbs shall be eligible for Resident Fellowship." Under this section as a teacher in an allied science one dentist was admitted to membership in 1910. The admission of such a member meant that so far as the Academy was concerned dentistry is a *science* and it is allied to medicine. Because of a good deal of discussion of the interpretation of the by-law which admitted dental teachers it was deemed advisable not to put any more dentists up for membership until a better under-

standing was reached. During the war period and many times before dentists were invited to present papers before the Academy. It thus became evident to the members of the Academy that dentists might well be members. During the presidency of Doctor Primrose and later Doctor King, several members of the staff of the Royal College of Dental Surgeons were admitted under the section of the by-laws quoted above.

At a regular meeting following a request of the council the bylaws were changed so that any dentist in good standing is now eligible for membership in the Academy and such membership carries with it eligibility for membership in the Ontario Medical Association and the Canadian Medical Association. The amended by-laws read as follows:—

### BY-LAWS.

1.

#### Fellowship.

The fellowship of the Academy shall consist of:

- 1. Resident Fellows
- 2. Non-Resident Fellows.
- 3. Associate Fellows
- 4. Life Fellows
- 5. Honorary Fellows.
- 6. Corresponding Fellows.
- 7. Benefactors.

2.

## Qualification for Fellowship.

- 1. Any qualified, regular medical practitioner, or any one engaged in teaching or research work in medicine or allied sciences, resident in Toronto or its suburbs, shall be eligible for Resident Fellowship.
- (a) Any qualified regular dental practitioner, resident in Toronto or its suburbs shall be eligible for Resident Fellowship.
- 2. Any qualified, regular medical practitioner or any one engaged in teaching or research work in medicine, or allied sciences, resident in Ontario and non-resident in Toronto or its suburbs, shall be eligible for Non-Resident Fellowship.
- (b). Any qualified regular dental practitioner, resident in Ontario and non-resident in Toronto or its suburbs, shall be eligible for Non-Resident Fellowship. Resident Fellows removing from Toronto or its suburbs may become Non-Resident Fellows by vote of the Council; Non-Resident Fellows upon moving to Toronto or its suburbs may become Resident Fellows by vote of the Council.
- 3. Life Fellows shall have been Resident or Non-Resident Fellows in good standing. They shall have attained the age of sixty-five years and shall have applied to the Council for election to life

fellowship. They shall be elected by the Academy upon the recommendation of the Council.

Each Life Fellow shall have the same duties, rights and privileges in the Academy as he had before being elected to life fellowship.

- 4. Honorary Fellows must be men of eminence, distinguished in science. They shall be elected by unanimous vote of the Academy upon recommendation of the Council, and not more than three Honorary Fellows shall be elected in one year. The number of Honorary Fellows shall at no time exceed twenty-five.
- 5. Corresponding Fellows shall first have communicated a paper to the Academy. They shall be elected by vote of the Academy upon recommendation of the Council.
- 6. Any person having contributed \$1000 or more to the Academy shall be eligible to be elected a Benefactor by vote of the Academy upon recommendation of the Council.

Under the amended by-laws about fifteen new members were taken in. The open door to dentists has never become generally known to the dental profession. About a year ago the Academy added a fine hall and many other improvements to their most suitable property in Queen's Park. When subscriptions were being solicited for these improvements the dental members were asked to do their share. This suggested that there should be a far greater number of dental Fellows of the Academy and that a Dental Section should be formed. It was feared that if a dental section of the academy was formed and that fellowship among the dentists was sought it might interfere with the membership of the Toronto Dental Society. It occurred to someone that perhaps the Toronto Dental Society might be housed in the Academy as a section. This was soon discovered not to be feasible because as a section the dentists could only speak through the Academy and thus official Dentistry in Toronto would lose its identity. Besides this, a section as large as the Toronto Dental Society would be altogether too large as compared with other sections.

It was then suggested that dentistry should join with the Academy of Medicine, each running its own affairs. Or in other words form an academy of Dentistry to join with the Academy of Medicine under the title of the Academy of Medicine and Dentistry. Each having its own identity and conducting its own affairs over which would preside a council elected by each. Such council to have jurisdiction over business matters only. Objection was offered that in the Charter of the Academy all real estate must be held in the name of three Trustees, but apparently this is not a very great barrier. It was also said that an institution which had gone on for over fifteen years and collected buildings, property, equipment and library up-

wards of one hundred and fifty thousand dollars would be indeed generous if it offered to share on equal terms with the dental profession so large a plant.

Another plan which was discussed at some length was the formation of an academy of Dentistry to be housed in the Academy of Medicine on a rental basis. By this plan dentistry would do all its own financing and pay the academy for whatever service and accommodation it got. The Toronto Dental Society has held its meetings in some hotel or restaurant at which a meal was served and since the academy was not prepared to provide such service it was looked upon as an objection.

These negotiations have been going on between the council of the Academy and a Committee of the Dental Fellows for about a year without much result.

The committee of the Fellows of the academy of medicine presented the problem before the executive of the Toronto Dental Society to determine if they wished to consider any such problem. The executive of the Toronto Society considered it from all angles and were of the opinion that an academy of Dentistry should be formed but whether it should be housed in the academy of medicine as a section or partnership or as tenants or in the Dental College or some place else should be left to a general mass meeting of the dentists of Toronto.

The plan of the organization of the Toronto Dental Society has worked splendidly for over fifteen years but it has not been attractive to the younger members of the profession. A dinner was held after which some noted dentist gave a paper which was discussed by one or two set speakers. The increase of membership has not kept pace with the increased dental population of the city. Young men have little opportunity to study or take part in such a society. In the proposed Academy no matter where it is housed there will be several sections in which those interested in special subjects can get together and discuss their problems. Exodontists, Periodontists, Prosthodontists, Operatives and theorists can work together.

## Records of Public Service will Help to Determine the Kind and Value of Service in the Future

The report of the Director of Dental Service for the City of Toronto appeared in the last issue. The guiding principle to any public service is, of course, the greatest good to the greatest number. A service so large and so important to the well-being of the community must aim at efficiency in every particular. Since there is not

sufficient equipment and personnel to serve all those needing it there must be some fine discrimination so that as many as possible will get some service. In many departments of dental practice, a half-loaf is better than no bread, while in others the half-loaf is worse than no bread.

According to the report, there are 85,000 children in the City. Of these 55,000 were examined last year and 20,000 treated. Of the 55,000 examined, 28,000 required treatment, thus of those examined 8,000 were not treated who needed it, and, upon the basis of the children examined, there would be, roughly speaking, 15,000 of those not examined requiring treatment, or, in other words, in all 23,000 children requiring dental service who do not get it at all. About half of the children who require treatment get it. In the face of such a condition, each case presented should be studied on a basis of the time required to save a tooth or a denture.

Such a service provides a splendid opportunity to apply the principles of economics. The children attend school for six to eight years and are continuously under the observation of the school dentist. Reliable statistics could easily be prepared on such important operations, such as the length of time it takes to insert a cement or amalgam filling; how long does such a filling preserve a tooth; how long does it take to devitalize the pulp of a molar and fill the root and crown, and how long does such an operation preserve such a tooth? If these things were known, it could be decided more or less definitely how many teeth requiring devitalization would need to be extracted to give sufficient time to preserve the balance by filling. The relative value of the anterior and the molar teeth could be determined. To-day there is little known about the real value of prophylaxis.

Public dental service, where the patients are under control for observation, record and examination at all times, offers the greatest possible opportunity to provide statistics which would be of positive value in determining the kind of dental service that can be supplied to a given number of patients by a given number of operators. Boards of Health could be advised how many operators would be required to fill the teeth of all the children, extract all teeth with paining pulps or devitalize and fill such as require it. If such statistics were ready many more School Boards would provide dental service because they could be positively advised as to the cost and the value before hand.

## **Editorial Notes**

Dr. C. A. McLean, 494 Queen Street, West, Toronto, had his office equipment damaged by fire to the extent of \$1000.

There are only two pathological structures with which the dentist has to deal, the pulp and the peridental membrane, and yet these are of far reaching consequence to the patient. The modern physician does not expect to succeed in the treatment of disease without the assistance of the dentist.

The University of Toronto provides opportunity for teachers and others to proceed towards the Degree of B.A. by attendance at summer school, or in classes in groups of twenty at any point in the Province, the group to provide the rooms and a ridiculously low fee being charged.

Some recent observations would indicate that the dental tubules have definite communications with the cumediun, but on the other hand it seems to be quite impossible for drugs to pass through from the dentine to the cennutrum.

Two persons have been fined \$100 each in Vancouver for practising without a license.

The Hamilton Dental Clinics gave a course of one week under Dr. E. T. Tinker of Minneapolis at the Royal Connaught Hotel. In finishing up the course Dr. Tinker reviewed the week's work, laying special emphasis on the salient points. The dentists who attended expressed themse ves as delighted with the clinic, unanimously pronouncing it the best and most interesting in the history of the organization. An appropriate recognition of their gratitude to Dr. Tinker was made by the members of the clinic in the presentation by Dr. Locheed, the president, of a small but very acceptable gift.

Since the beginning of dental service in the Calgary public schools there is a reduction of 15% in the frequency of defective teeth.

# A SOLUTION THAT WILL FREE A DENTAL OFFICE FROM OBJECTIONABLE ODORS.

Use a glass jar with a close fitting glass cover. Fill the jar one half full of alcohol and add a pinch of Diamond Dye to the desired shade. Put in Ammonium Carbonate (Squibbs Cubes) until jar is almost full, use a teaspoonful of oil of lavender or oil of violet and about a teaspoonful of ammonia.

Leave jar uncovered for a short time each morning.

## Correspondence

February 28, 1922.

Dr. A. E. Webster, Editor, Dominion Dental Journal, Toronto, Ont. Dear Doctor Webster:

We are pleased to send you under another cover a review copy of the 1916-20 volume of the Index to Dental Periodical Literature which is just off the press.

We trust you will give the volume consideration in your book review column, incidentally mentioning the fact that the edition is limited and orders accompanied by the remittance should be sent at once to the undersigned. The price of the volume delivered to all points within the United States and Canada is \$6.00 and to all other points \$6.50 (New York Exchange).

The Index Bureau is deeply appreciative of the publicity and many other courtesies extended by the dental magazines in connection with our work and I wish to repeat the statement that has been made a number of times before: the Index is not a publication for profit, the officers serving without remuneration and every dollar received is used in connection with the preparation and distribution of the Index.

The third volume of the series covering the literature from 1839 to 1880 is now in preparation and will be ready for delivery about October first. This will be the foundation of every dental library and of inestimable value to every person interested in dental literature.

There is also in preparation the volume covering the period from 1921 to 1925. The Index for this term will be published in the form of four annual paper bound books, the type of these being rearranged and included in a cloth bound volume at the expiration of 1925. The first of these paper bound books covering the year of 1921 will be ready for delivery about May first. Price and particulars later.

We wish to thank the publishers who have complied with our former request in placing the names of Dr. Arthur D. Black, Editor, 122 S. Michigan Ave., Chicago, Ill., and Dr. Abram Hoffman, Secretary-Treasurer, 381 Linwood Ave., Buffalo, N. Y., upon their exchange list and we would appreciate a renewal of this editorial courtesy.

Thanking you for past favors, I beg to remain,
Yours very truly,
A. Hoffman,
Secretary-Treasurer.

## Obituary

Dr. J. G. Roberts, so long known in many circles in Brampton, died April 5th, 1922, at his home in Toronto. When the war broke out Dr. Roberts joined the Canadian Army Dental Corps and was stationed at the Central Military Convalescent Hospital; Toronto, and was later moved to the Spadina Military Hospital. He graduated from the Royal College of Dental Surgeons in 1886, and the Philadelphia Dental College in 1887, following which he took the late Dean Willmott's practice for a few months, and in the Fall of the same year took over the practice of his preceptor in Brampton, where he remained until 1916. He was noted in Lacrosse and musical circles, and for several years was Chairman of the High School Board. He was a past master of the Ionic Lodge, and a trustee of Grace Methodist Church, Brampton. Dr. Roberts was competent in his own profession, and a citizen of high ideals and progressive spirit. His only son, a graduate of the R. C. D. S., was killed in the war. He is survived by his wife and two daughters.

W. J. Giles died at Kelowna, B. C., March 15, 1922. Dr. Giles, because of failing health, left his practice in Montreal to live in the fruit belt of British Columbia, where he had a large Ranch. Dr. Giles was a native of Athens, Ontario, a graduate in Arts of McGill and the University of Pennsylvania, Philadelphia, in dentistry. For several years he was dean of the dental department of McGill and professor of operative dentistry. He was a conspicuous figure at all Canadian dental gatherings. He leaves a widow and two children.

- FOR SALE—Campbell-Coolidge X-Ray Unit, 65,000 volt. 3-5 spark gap, 30 milliamperes, nearly new, and in perfect condition. Cost over \$1,000. Will sell for \$550. For further particulars, address Box 577, Cornwall, Ont.
- FOR SALE—Ritter Dental Lathe—A. C. 110-60; in excellent condition. Apply J. D. Brown, 647 King St., East, Hamilton, Ont.
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## ORIGINAL COMMUNICATIONS

## The Gold Crown as a Menace

H. J. Long, Toronto

The gold crown is exactly what the Dentist makes it. It can represent an inverted garbage pail squeezed into the gum, with a tooth beneath it, having a rarefied area at the apex, a canal filled with putrescent and infectious material or a crown full of decayed and disintegrated tooth structure.

On the whole, it is a perfect incubator for all kinds of germs. According to present-day knowledge of focal infection, it would be rather surprising to find the possessor of such a wonderful fixture in perfect health.

As most of the gold crowns manufactured by the majority of dentists are of a type here described, it is natural that the medical investigators condemn the use of the gold crown in the human mouth, as he finds it to be the source of a great many diseases. No wonder that at the dental meetings the makers of those garbage holders do not want to be identified as such. At the February meeting of the Kings County Dental Society, where Dr. Gillett delivered a talk on single tooth restorations, neither the essayist nor those who discussed the paper dared to mention the gold crown as a means of restoration for a single tooth.

There was a silent understanding that the gold crown has no place in dentistry; that in ays with perfect cavity preparation, perfect walls, angles and margins, or amalgam fillings with similar cavity preparation and porcelain jacket crowns.

Now let us seek a common standing ground to discuss the failures of gold crowns from a common view point and arrive at some definite and desirable conclusion by considering an ideal aim to make a restoration as perfect as the natural teeth in healthy condition, but this is impossible and will always remain so, because any tooth requiring repair or restoration is in an abnormal or pathological condition to begin with and restoration must be made

with a foreign material which can never become an integral part of the human economy.

The union between the natural tissue and the material used in making the restoration must be mechanical, not vital and the line of union must of necessity always be a vulnerable point for bringing about further and additional pathological conditions.

The great difficulty of harmonizing a metallic or mineral substance with animal tissue as dentine or enamel with gold.

In the vast majority of cases where artificial crowns are to be adopted devitalization is a primary necessity and our restoration is attached to, or resting on, a non vital and therefore unstable support.

Lack of conformity to type or divergence from anatomical outline due to a careful and persistent study of dental anatomy, a gold crown would exert upon the antagonizing teeth such a force as would cause a peridental inflammation and thus a menace to health.

Then where on the part of some patients, there is an inability or unwillingness to endure the inconvenience and suffering necessary in the extensive preparation for a gold crown, and the amount of tooth structure destroyed in the requirement of the preparation, causes a failure and a menace.

Most men on graduating realize their own incompetence and to make a good showing send out their crown work to a dental mechanical laboratory and often these crowns are made from very indifferent models or impressions, accompanied by very hazy instructions. This crown is made and looks very well as you view it in the hands. But then the tooth or teeth must be reduced to permit adaptation and reduction goes on until the natural tooth is made to fit the crown, thus we have a hit or miss fit and the patient reaps the menace.

There are many reasons why a gold crowned tooth fails; but the main reason is that the tooth is entirely hidden from view, and if trouble ensues it is often not discovered until the tooth is destroyed beyond repair.

A perfect bridge with two gold shell crowns as abutments on a lower second molar to a second bicuspid was cemented on by a careful dentist for a fellow brother. After seven years, the bridge became loose, though there was no sensation whatever in the abutments. The bridge was removed, when it was found that the molar abutment was entirely gone, except the root, which still remains in the mouth, covered over with copper cement, a black monument to the failure of gold crowns. And you may safely say a sufficient number of the best bridges have traveled the same road, to make this kind of bridge work an uncertain procedure, owing to the fact that we cannot see what is going on under a gold crown. Any badly broken down molar or bicuspid is far better

off when partially built up with amalgam or with a gold inlay, than when fully restored with a gold crown.

On studying the anatomy of extracted teeth, we find that the circumference of the large part of the crown near the occlusal surface is from two to five millimeters greater than that of the neck of the tooth. In order to secure a close fit at the gingival margin of such a tooth it would be necessary to remove all the enamel from the tooth. This difficulty may be lessened by devitalizing the tooth, but the practice of indiscriminately devitalizing the pulps in posterior teeth is rash folly. No devitalized tooth is as good as a vital one, no matter how carefully the pulp may be removed and the canals filled. A devitalized tooth proves an uncertain quantity in a sufficient number of cases to render it advisable for us to shun devitalization whenever possible. In rare cases where a deviated molar is to be crowned with gold as abutment for a bridge, devitalization with all its uncertainty is not only permissible but advisable.

A shell crown should fit, that is, it should bear the proper relation to the tooth upon which it is placed, to the gum, to its fellow or fellows in the same jaw and to the occluding tooth or teeth. It should also contain a sufficient thickness of metal in its grinding surface to bear the long and heavy strain of mastication which the patient has a reasonable right to expect to put upon it. The preparation of a tooth for a crown of this character necessitates for purely mechanical reasons, the destruction of nature's entire protecting shell of enamel with a shock to the tooth and harrowing experience to the patient is perhaps only too vividly in your minds. Or if you would spare the patient the more acutely distressing part of the operation—indeed, in many cases if you would make its proper performance possible and forestall what might otherwise occur as a result of it—it will be necessary to remove the pulp as a preliminary measure. This is a fixed part of the technique of some operators. Thus of five tissues with which nature formed the dental organ, each with its special function, two have been entirely destroyed and those that remain exposed to risk even in the most skilfully handled cases and placed in jeopardy with anything short of the most expert care. Such mutilation, in the light of a better way is more justifiable in principle than the sacrifice of a hand where the amputation of a finger might suffice.

The practical impossibility of perfectly cementing a crown which extends under the margin of the gum. This is the vulnerable point in a tooth capped with gold, there is a moist zone around the neck of the tooth, just under the free margin of the gum which cannot be thoroughly dried and consequently that portion of the crown is never properly cemented. This can be partially overcome

by allowing the crown to be worn for a few days, without being cemented. Then the gum will stand away from the tooth far enough to allow fairly good drying of the neck of the tooth when the crown is cemented, but even this does not exclude all the moisture.

Irritation of the soft tissues by the edge of the gold band. No matter how much care is used in fitting the gold band around the neck of the tooth, it is practically impossible to prevent more or less irritation. Some operators will undoubtedly deny this, but a careful examination will, in a large percentage of cases, show irritation of the gum margin to a greater or less extent. This irritation is not always fatal to the tooth, but it is an unhygienic condition to be avoided, if possible.

The presence of a large quantity of metal in the mouth is injurious to the tissues. It increases thermal shock and promotes electrical disturbances in the mouth. Gold is worse than amalgam in these respects because of its greater density.

Lesions in vital pulp caused by gold shell crown restorations. Two papers have appeared which treat of the result and pathological conditions in the case of living pulps beneath gold shell crowns. Both of these articles condemn the practice of leaving vital pulps beneath such extensive gold operations. The first paper entitled "Pathological Lesions of the living pulp under a Gold Shell Crown" by M. L. Rhein in Items of Interest 1909. In this paper Dr. Rhein calls attention to the pathological conditions which may be found in pulps under gold shell crowns, especially degenerations going on to calcifications of the Pulp. As an illustration he reports a case in which the pulp was removed from a tooth which had been crowned, and sections were made of the tissue thus obtained. The photomicrographs show a marked degeneration and a tendency to calcification throughout the pulp.

The second paper, a more comprehensive treatment of the subject, appeared in Dental Cosmos for 1910. It was entitled "The Adventitious effect of large masses of gold in contact with tooth tissues," by I. N. Broomell. He first reports a case in which two pyorrhetic teeth which had served as bridge abutments were removed and an examination was made as to the condition of their pulps. In these are shown changes in the odontoblastic layer and an atrophy of the pulp cells. The blood vessels were enlarged and sclerotic, while the dentine was largely disintegrated with the formation of interglobular spaces. All of these changes the author attributes to the adventitious effect of the gold crown used for the attachment of the bridge to the tooth. Other cases are cited by Dr. Broomell, in which a more specific effect of the irritation of gold is seen. In one case suppuration of the pulp had been pro-

duced beneath a gold crown. The dentinal fibres of this specimen showed club-shaped enlargements and a large amount of calcific degeneration had taken place.

Still another case was that of a woman forty-five years of age. of highly nervous temperament, with teeth which were hypersensitive under normal conditions. A gold shell crown was placed on a lower bicuspid which was free from caries with but little cutting of the enamel. After setting the crown an acute pulpitis resulted immediately and it became so marked as to require the removal of the crown. The crown was reset after ten days and a little later the tooth was extracted because of pain. An examination of the pulp showed a marked increase in the number and size of the odontoblasts and characteristic hyperemic and an acute inflammatory condition of the pulp. It was evident to the author that the disturbance in the pulp was due to the thermal influence of the gold casing upon the terminal branches of the dentinal fibres, notwithstanding the fact that they were shielded by a layer of normal enamel. He also states that one of the most probable sequelæ of crowning a tooth with a live pulp is that of dry gangrene. He cites a case in illustration of that view, and shows sections of the pulp which have become shrunken and structureless.

We have been speaking generally of the well-fitted crown. but what about the misfits?—that innumerable caravan that parades itself before the profession, including all stages from the near-fit to that glaring burlesque in the case of which there has been no attempt whatever at tooth preparation and apparently no knowledge of such a procedure. The mere asking of the question brings the answer before your mental vision. Flaring band margins filled with cement forming great shoulders generally carried well into the soft tissues and with what result? Irritation, inflammation, suppuration, dissolution of the alveolor process, destruction of the peridental membrane; exfoliation. To be sure, they do not all come out. In these days of increasing knowledge of auto-intoxication or bacterial poisoning, and the many ills that beset the flesh having their origin in the absorption of pus from the oral cavity. its admixture with the food in its passage into the alimentary tract, and the general unsanitary condition of the oral cavity, one might well wish more of them did come out and more promptly, instead of remaining to exert their baneful influence upon the whole human organism. Of great importance also is the condition frequently found where the lute has been dissolved out of the space between the band and the neck of the tooth—its place being taken by mouth secretions and food dèbris which becoming stagnant, ferments and causes decalcification and decay, in many cases to the utter ruin of the tooth crown as well as the destruction of the pulp.

It comes to pass then, that a wellfitting shell crown means great mutilation of tooth tissue, with pulp destruction as a preliminary or probably result, with possible impairment of the remaining tissues, and an ill-fitting one means serious pathological conditions of the surrounding and supporting tissues, with the resulting systemic disturbances, their gradual dissolution, the loosening and laming of the tooth with attendant discomforts and annoyances and incapacitation for service, and its ultimate loss. This is more serious than practical aspect. It seems scarcely necessary to mention the esthetic side and the most ardent advocate of the shell crown would or could make no claims for it from that point of view. You must agree with me then, that the shell crown even at its best is a vicious measure and menace.

Many years ago, when artificial crowns were in their infancy a dentist was in a measure excusable for placing in the mouth a two-piece shell crown, which is not only unclean, unscientific and inadequate to meet the requirements of a crown, but injurious to the health and comfort of the patient. But at this time of international and local dental societies where clinics and papers are constantly being contributed, dealing in detail with this important subject, and in this day and time of numerous dental journals filled with scientific facts upon the subject, how can a dentist justify himself for committing such a mistake as placing in the mouth a two-piece shell crown without the slightest resemblance of tooth form? This is due practically to ignorance, which should not be accepted as a justifiable excuse, and if the following questions could be correctly answered and a proper remedy successfully applied, we would no longer have these distressing conditions: Why is it there are not larger attendances at dental society meetings? And why don't more dentists read Dental Journals? If these two questions could be properly answered and a remedy applied, it would no longer be a daily occurrence for us to observe in the mouths of patients gold shell crowns, worn through on the occlusal, ill-fitting bands at the Gingival and caries attacking the tooth at that point; shell crowns where there has been no attempt at the restoration of the contact point or maintenance of the interproximal space, or proper occlusal form, either one of which will result in disease of the gum, injury to the adjacent teeth, general systemic disturbances, as well as constant discomfort to the patient and final loss of the tooth, thus the day of the shell crown is past.

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## Oral Anesthesia

W. G. Hart, Toronto

Oral anesthesia was first introduced for the purpose of performing the many surgical operations in the oral cavity, without the sensations of pain, and is produced by a temporary paralysis of either the nerve itself or its endings. It has many advantages over general anesthesia and thus is extensively used in the relief of the suffering in the dental chair. One great advantage in dentistry is that the sensations are temporarily controlled, the patient still retains his senses and thus not only makes it much easier for the operator to handle the case, but also the patient will cooperate and aid the operator, thus relieving him of the certain anxiety often caused in general anesthesia. Also there are many cases in which the use of general anesthesia is not advisable, such as in patients with weak hearts, etc., and it is dangerous to use general anesthesia so local anesthesia is used with much less degree of danger.

Pain is a sensation brought about by the stimulation of the many receptors which are highly specialized organs in the mucous membrane and skin throughout the whole body. The oral tissues and teeth are very well supplied. Pain registers injury and disease and is a hindrance in the operative measures which are necessary to get rid of the abnormal conditions. Susceptibility to pain varies greatly in race, sex, age, constitution of the patient, etc.: thus the intensity is not so great in some cases as in others. to relieve the sensations caused in surgical operations anesthesia was introduced and in dental or minor surgical operations the operative procedure is not so severe but that the patient can bear to have it performed while fully conscious. The psychic effect can be controlled to a great extent by careful management of the patient, tactful reception by the office staff, considerate treatment by the nurse as well as unostentatious preparation for the operation. With the modern means of conduction anesthesia the sensation of pain may be controlled.

Local anesthesia is the effect caused by the injection of certain arugs into the tissues by means of a syringe, not always. The drug first used was cocaine. A certain plant Erythroxylum coca was first used by natives in Peru. It was found that native runners could overcome hunger and fatigue after chewing the leaves of this plant. In the nineteenth century it was exported to Eurpoe and from the leaves an alkaloid cocaine was extracted. From this, certain salts, the main one of which is cocaine hydrochloride, were prepared. In 1855 Garmeche noted that chewing the leaves caused a certain numbness of the tongue. Soon many men experi-

mented on the eye, nose and throat and a great advance was made when Carning and Goldscheider demonstrated a functioning of the nerve was inhibited when the solution was injected into it. It was used quite extensively, although there were many fatal cases from its effects. It was found that it could not be used in every case on account of the toxic effect, and scientists endeavored to replace it with a less dangerous drug but having the same effects. Braun formulated the following requirements for a substitute for cocaine. First, it must not be inferior to cocaine in its anesthesia power. (2) It must be relatively non-toxic. (3) It must not have an irritating action even on the most delicate tissues, but must be absorbed from the place of application without causing hyperemia, inflammation, painful infiltrates or necrosis. (4) It must be possible to combine the substance with suprarenin without losing any of its potency and should not affect suparenin. (5) It must be soluble in water and the solution sufficiently stable to permit sterilization at boiling temperature. Many other drugs such as apothesine, novocaine, procaine, eucaine, stovain etc., have been prepared to replace cocaine, and these have been used with some success to a certain extent, but none of these drugs fulfill all the requirements. These drugs are made up in the form of small colorless tablets soluble in water and much less so in alcohol, and should be prepared just prior to using. These also will permit sterilization at a boiling temperature.

There is a large variety of syringes manufactured for the use in local anesthesia. These syringes may be made of metal or of metal and glass, but must be of such a material as will not corrode or rust when sterilized, must be easily cleaned and manipulated. The needles vary in size according to their use. They should also be made of metal of such a nature which will not rust in sterilization will bend slightly without much danger o breaking. Needles are manufactured of steel, pure nickel, gold, or iridio-platinum. Steel needles shou'd be either discarded after use or carefully sterilized, as they easily rust and may break in the act of injection. Iridioplatinum needles will not rust and may be bent slightly without much fear of breaking, which is a decided advantage over the others. These needles are made in various lengths, sizes and shapes according to the injection necessary. In local anesthesia by infiltration short needles may be used either straight or curved mounted or otherwise for mucous anesthesia. In conduction it is often necessary to use longer needles. These needles should be kept as sharp as possible to minimize the pain of inserting. A special round stone or fine gold file may be used for this purpose. They should always be kept in a sterilizing solution and always ready for use.

The preparation of a patient for anesthesia is of importance.

No dieting as in general anesthesia is necessary, but if the operation, is of a more serious nature a good night's rest before the operation, is recommended. Often very nervous patients will worry themselves sick for days before the operation. For these cases a hypnotic such as veronal may be given the night before to assure a good night's rest or a dose of morphia given at least thirty minutes before the operation. The patient should be made comfortable in a reclining position and should not be disturbed by the sight of instruments. All tight clothing should be loosened. The mouth should be sprayed with a mild antiseptic, the area to be injected dried thoroughly and tincture of aconite and iodine applied. It is necessary to have this area as dry as possible to allow the solution to have its best effect. The iodine is used for its antiseptic properties and the aconite for its analgesic properties to reduce the pain of insertion of the needle.

Infiltration anesthesia is used in cases of minor extractions and is injected around the area for paralysis of the nerve endings. Sometimes it will penetrate the bone, but in cases where the bony structure is heavy it is best to resort to conduction. The injection should be as close to the bone as possible, but do not allow the solution to be forced underneath the periostium, which may cause unnecessary swelling. Care should be taken not to inject into arteries and be carried away, thereby losing the desired effect, also care must be taken not to inject air into the tissues. This precaution must be taken beforehand to see that all the air is removed from the syringe before it is injected. Loose tissue takes up the anesthesia more rapidly and thus it is a good policy to start in these places first. A good plan is, after the first puncture, to inject as the needle advances, thus minimizing the pain. As a rule it is necessary to use both labial or buccal and lingual injections. Injections of the buccal surface of the upper jaw should be directly over the eminence of the root halfway between the gum margin and the apex. In the molar region, it is often necessary to deviate from this rule, pushing the needle obliquely to the intended place where the main part of the solution is deposited. In operations of purely dental character, such as extirpating the pulp, one injection either on the buccal, labial or lingual surface is necessary, but in cases such as the first bicuspid, which sometimes has two roots or molars, it is necessary to inject both on the buccal and lingual to anesthetize the roots. On the lingual side start at the gingival margin, push the needle at once parallel with the process into the submucosal tissue, which takes up the solution rapidly. The injection in the lower is somewhat similar but often it is easier to insert over the tooth next and then force obliquely towards the root in question. The injection of the lingual is the same as in the upper. If more than one

tooth is to be anesthetized it may be done by injecting at the point of injection of the most forward root; here a small amount of solution is deposited and then force the needle horizontally towards the second, deposit some more here and so on. The lingual injections must also be made, also the injections can only be made in perfectly healthy tissue, as there is a danger of spreading the diseased organs. but in cases where it can be carried out it saves time and does not require so much of the solution to produce anesthesia. In cases where the bony structure is dense, as in the case of the upper first and second molars and lower molars, it is not advisable to use infiltration method as the solution will not penetrate heavy bone. Also in badly abscessed teeth the abscess seems to absorb a solution rapidly and the desired effect is lost. However, in cases of purely dental nature such as operating on sensitive teeth or extirpating the pulp or removing a few teeth, which only take a short period of time, anesthesia of this nature is very satisfactorily used.

Conduction or block anesthesia as it is called is a much more recent method of oral anesthesia. It has many distinct advantages over the infiltration method, but is more complicated. Its action is to intercept or block the conductivity of a nerve at a convenient point in order to prevent afferent impulses to the brain. The injection is made in the loose connective tissue or a bony canal at some distance from the field of operation, which lessens the possibility of infection and a tendency to after soreness. By this method a large area may be covered in most cases for a comparatively longer period of time. On account of the injections being made at a distance from the operation the pain of hypersensitive diseased tissue being pierced is thus relieved. The anesthesia can be controlled and if necesary a second injection may be made in the same place. The anesthesia is much deeper taking in not only the tooth and superficial tissues surrounding, but the deeper parts, bone and all the teeth supplied by that nerve. If it is especially desired to have a bloodless operation, the infiltration method along with the conduction may be employed. In using the conductive method it is necessary to have a thorough knowledge of all the muscles, bones, vessels and nerves which make up or supply the oral cavity and requires a skill in the technique of injections to be able to anesthetize the area required and no other part. In some cases it is impossible, as the nerve which supplies the field required often supplies other tissues or organs as in the Pterygomandibular injection, but in making this injection the needle has to pass or come very close to muscles which should be avoided, also vessels which would carry away the solution and the desired effect is lost, therefore it is well to have small plates of the different planes before you as a means of instruction.

In the ptervgo-mandibular injection the syringe used by Dr. Thoma is No. 1 mounted with long 45mm, iridio-platinum needle and long straight hub. The landmark, as the point of injection is called, is the post molar triangle which is located by palpating, first the oblique line of the ramus which is very prominent, then the internal oblique line which varies greatly in prominence and form. The tip of the finger rests easily in the depression between the two. This can be done with the index finger or thumb of either hand whichever is convenient to the operator so as to make the puncture with the other. When this is done the place of insertion is on the inner surface of the palpating finger. Puncture the needle and deposit a few drops of the solution. At this point the barrel of the syringe should be between the cuspid and bicuspid of the opposite side. Advance the needle in the same direction, a fascia presents itself but it is pierced easily with a little pressure and then comes in contact with bone, the internal oblique line. Now bring the direction more towards the median line until it is nearly parallel with the ramus. If it is desired to involve the lingual nerve the anterior surface of the ramus is generally convex, especially in older and heavy set people, and by releasing the needle slightly advance at a less acute angle. The ptervgo-mandibular space should now be reached, but it should again be made certain by feeling the bone. The bulk of the solution is deposited here. Care should be taken that none of the solution is deposited as the needle is injected so as not to involve the muscles in passing. In children the mandibular foramen lies somewhat lower, in the aged, higher; injection should be made accordingly. The effect of the anesthesia should be from ten to twenty minutes, and is best at one half hour. When the anesthesia begins to take effect the tongue becomes cold, stiff, numb and feels swollen. The area anesthetized should involve all the teeth, bone, mucous membrane on the one side of the mandible, also the tip and side of the tongue. The anesthesia should last from one to one and a half hours. If more time is required either double the amount, which is two cc. may be injected the first time or after the first hour a second injection may be made.

The mental injection into the mental foramen is of not much advantage, as the pterygo-mandibular injection involves it. Its location is either anterior, inferior, or posterior to the apex of the second bicuspid and may be found by palpating the finger. Insert needle from above and behind for about five mm. One cc. is sufficient and a waiting period is from ten to fifteen minutes. The area included is the lip, teeth, anterior to the foramen and the labial surface of the tissue. The lingual side still retains its sensation. The injection is generally used on both sides to get anesthesia for the

whole of the anterior of the mandible. The duration depends on the amount of solution and will last at least one hour.

The spheno-maxillary injection for the maxillary nerve is not so easily made. The nerve is not conveniently situated to properly inject into to get all its branches and if this is satisfactorily carried out the branches supply so many other organs such as the soft palate and uvula, these are all involved causing a disagreeable sensation. On account of this it is desirable not to block the whole nerve as it comes out of the foramen rotundum but just the branches, the posterior alveolar nerve. The mucous membrane and gum tissues can be taken care of separately. The point of injection is the zygomatic process on the maxillary bone directly over the apices of the second molar. After inserting the needle, it is advanced obliquely upward and backward in close contact with the bone. After it is inserted a few drops are injected slowly and more as the needle advances. After the insertion of about 3cm. the point should be in the neighborhood of the infra-orbital fissure, where the remaining part of the solution which is about 3cc. is deposited. It should take about fifteen minutes for it to act but this depends on how close the injection comes to the nerve. The area anesthetized should take in all the teeth buccal and labial surface on the one side and the anesthetic should last for one or one and a half hours.

The infra-orbital injection is employed to block the anterior superior alveolar branch of 2nd division nerve. Unless the injection is made by the extra oral method it is necessary to depend on the infiltration of the solution as it is impossible to advance the needle into the foramen. The infra-orbital foramen can be located by palpating the finger at the inferior border of the orbit. With another finger retract the lip so as to expose the entire canine fossa where the needle should be injected as high as possible. Advance until it is felt to be under the palpating finger. Insert the needle down to the bone and compress the soft tissues over the foramen while making the injection so as to force the solution into the foramen. Use from one to one and a half cc. of the solution. Waiting period should be about ten minutes. The area involved is the central and lateral incisors, and sometimes the cuspid and lasts about three quarters of an hour.

The incisive injection is in the median line directly posterior to the central incisors. The foramen is large and if the bone is followed the needle will be conducted into the foramen where a few drops are all that are necessary to produce anesthesia for nearly one hour.

The palatine injection for the anterior palatine nerve to anesthetize the palatal tissues and surfaces from the cuspid back and

lasts for about one hour. Insert the needle for about one cmabove the gingival margin on the palatal side of the last erupted molar. The place should be selected so that the needle can be advanced towards the palatine foramen in a straight line. Here about one quarter cc. or less is deposited. If too much is deposited the soft palate will be involved, which is undesirable.

These injections may be made by the extra oral method but are more for the use of extensive surgical operations, in cases of fractures of the mandible or when the intra-oral method cannot be employed.

Another method of anesthesia is by means of the ethylchloride spray which has two actions, one of freezing the gum tissue and as the fluid evaporates the patient in breathing in the fumes is brought to the analgesic stage. This method is not very satisfactory for extraction or dental operations except in cases of extraction of teeth in young children as its effect is not very deep and only lasts for a very short space of time.

There is also another method, the intra osseous method which may be used for operating on sensitive dentine, or extirpating pulps but is sometimes used in extractions of anterior teeth. The technique is as follows; sterilize field of operation with tincture of aconite and iodine which is between or in the fossa of the roots of the teeth about two cm above the apices. Anesthetize the mucous membrane surrounding by the infiltration method. With lancet, make incision through the mucous membrane to the bone. In this incision a specially designed metal guide is placed against the bone. In the hole of the guide insert the bone cutting or surgical bur and penetrate through the bone between the outer and inner plates. Now remove bur still keeping guide in same position. The purpose of the guide is to steady the bur as it enters the bone and also to guide the needle which follows. Select needle of same size as bur used and advance it to the guide into the bony structure where the solution is deposited. The advantages of this method are that a quick anesthesia is obtained.

In local anesthesia sometimes ill effects such as pain are caused by the solution not being sterile, too hot or too cold, and by the injection being made too rapidly the solution is not isotonic. Dull needles will often cause unnecessary pain or the injection into hypersensitive tissue. This last is eliminated in block anesthesia. Drugs or solutions which are sometimes made up and kept for a long time will deteriorate and lose their desired properties. Accidents sometimes will occur such as the breaking of a needle while injecting if longer than necessary. Thus post operative soreness may be controlled to a certain extent by the operator by using properly prepared solutions from fresh drugs and isotonic sterile

Ringers. Care should be taken not to inject into suppurative lesions. Bleeding to a certain extent is cleansing and protecting. Prolonged anesthesia sometimes results especially in conduction often due to the injuring of the nerve trunk during the operation.

These few facts, gathered from Thomes and Smith's Anesthesia and various current literature, are sufficient to show what a large and important subject Oral Anesthesia is.

## Pressure Anesthesia

W. G. Foster, Toronto

The use of local anesthetus in desensitizing pulp tissue preparatory to its removal is known by several names, such as contact anesthesia, pulp anesthesia, etc., but the term most generally in use is pressure anesthesia. Any of the above terms may be defined as the process of introducing such anesthetizing agents as cocain, or novocain, in solution; either directly into the pulp tissue itself, or through the tubuli of sound dentine by means of steady mechanical pressure, with the object in view of depriving the pulp of all sensation so that it may be removed without discomfort to the patient.

#### ADVANTAGE.

The advantages of this method over dentilization by arsenic may be summed up as follows:—

Firstly, the pulp may be desensitized, removed, and a dressing seal put in the canals, at the same sitting, thus avoiding the necessity of an extra appointment. Secondly, all danger of arsenic poisoning and its often disastrous results are removed.

#### DISADVANTAGE.

The disadvantages are as follows:—

Firstly, to attain the best results it requires four supporting walls to confine the solution to the cavity, and in some proximal occlusal cavities this is a difficult matter. In such cases are nic should be resorted to. Secondly, direct access must be had to the cavity. This is not possible in every case.

## TECHNIQUE.

Technique:—The tooth to be operated on and several of the adjoining ones, should be thoroughly cleansed of food debris and swabbed with alcohol. The rubber dam should then be applied for two reasons:—Firstly, as we are generally dealing with an exposed pulp, to prevent any infection from entering it. Secondly, if any solution escapes from the cavity, the dam prevents the patient from swallowing any of it. The rubber dam now being on, the overhanging portions of the enamel are cleaved off with a chisel. Then as much of the decay as possible is removed by the use of spoon excava-

tors. The next step is to render the remaining dentine in the cavity as sterile as possible, to safeguard against forcing any infection into the pulp. This may be done with phenol on a small pledget of cotton, followed by absolute alcohol and warm air, which leaves the cavity dry and ready for the anesthetic.

The solution used may be made from either novocain or cocain. If cocain is used the crystals are dissolved in a drop of sterile water on a clean glass slab. A small pledget of cotton, sufficient to put into the bottom of the cavity, is soaked in this solution and placed over the pulp. Over this a piece of unvulcanized denture rubber is placed, of a size that will go into the cavity and fit snugly to the margins. Pressure is applied by the use of a broadfaced amalgam plugger, gently at first and gradually increasing it, watching the patient's face for expressions of pain so as not to increase it too rapidly. When the patient indicates that all pain has ceased, the pressure is released, the rubber and cotton removed, and the pulp chamber freely opened into. A smooth broach is now gently passed to the apex, and, if free of pain, a fine barbed broach may be passed down the wall of the canal to the apex, given a halfturn and withdrawn, generally bringing the whole pulp with it. If the pulp still has sensation, the operation may be repeated.

In cases of distal occlusal cavities of molars, where the access is not so direct and the pulp is not actually exposed, the required result may be attained by forcing the solution through the sound dentine. The whole body of the dentine is traversed by large numbers of minute canals called dentinal tubules, which pass from the pulp to the junction of the enamel and dentine. These canals are so small and numerous that 30,000 have been counted in the area of a square millimeter. (Roemer) They are filled with protoplasmic extensions of the odontoblastic layers of the pulp. Innervation of these tubules has never been demonstrated, although there are many of the leading men of the profession, who have given much time and study to the subject, who claim they have been. It is through these tubules that the sulution reaches the pulp.

The first part of the technique in this case, is the same as the previous, such as applying the rubber dam and cleansing the surfaces of the teeth with alcohol and drying with warm air. A hole is then drilled through the enamel into the dentine in a sound part of the tooth, at a spot that is easy of access, generally in the mesial pit. For this purpose a sharp bibeveled drill, about a millimeter in diameter, is used. The rest of the procedure is practically the same as the above. As before, a small pledget of cotton, that will fit into the hole thus made, is saturated with solution and carried to place and covered with a small piece of rubber. A flat-faced instrument that will just fit into the hole is used to apply the pressure. By this me-

thod the solution is better confined and less pressure is required owing to the small diameter of the hole.

In forcing the solution through sound dentine the ordinary hypodermic syringe may be used by adjusting to it a sperial needle made for the purpose. The needle has a short blunt point with a shoulder. A washer of soft rubber fits over the needle onto the shoulder. The point of the needle is inserted into the hole made with the drill and the soft rubber washer pressing against the surface of the tooth seals the cavity and prevents the escape of the anesthetic while being forced through the tubules of the dentine.

When indicated:-

When a patient presents himself (or herself) with a cavious tooth, the pulp of which is involved to the extent of necessitating its removal and in such a state of hyperemia that the slightest pressure causes great pain, no attempt should be made to remove it at this sitting. As much of the decay as possible should be removed and an anodyne dressing, such as oil of cloves or creosote, should be sealed in with cement and the patient dismissed for a few days until the hypermia subsides, when it then may be anesthetized without any great pain.

In childrens' teeth in which there are no secondary deposits of dentine, pressure anesthesia gives the best results. Teeth of old people in which there is probably extensive recession of the pulp, badly worn or eroded teeth, teeth with pulp stones or calcific deposits in the pulp are all contra-indicated, mainly due to the fact that the dentinal tubules are plugged or entirely missing and as it is through these tubules that the anesthetic reaches the pulp no ordinary pressure will prove successful.

In cases of hypertrophy of the pulp, where the pulp has grown out into the cavity, the portion in the cavity should be cut out, as it is generally difficult to anesthetize the pulp through this toughened portion, a broad and sharp spoon excavator should be used, and with a single cut this portion should be removed. After the hemorrhage has ceased, the blood should be washed out and the remaining portion of the pulp devitalized as described above.

The principle of pressure anesthesia may be used to cauterize an alveolor abscess with a senus. A little cotton is wound on the end of a smooth broach and saturated with the drug (generally pure phenol). It is then passed well up into the root canal, leaving an end so that it may be removed afterwards. This is followed by a larger pledget of cotton also saturated with the drug and the whole covered with a piece of unvulcanized denture rubber sufficiently large to prevent the drug leaking out. Gentle pressure is then applied with a flat-faced plugger which forces the drug out through

the root and into the abscess area and then through the senus to the gum surface. When the lips of the senus show a whitening due to the action of the phenol, the pressure should be released.

The advantages of this method over the use of an abscess syringe, is that the flow of the drug is under better control, and just a sufficient amount of it is used to complete the operation, eliminating the danger of it running from the senus over the gum tissue.

The material used for the above thesis was taken from:—

- (1) Black—Special Pathology.
- (2) Dr. Prinz—American Text Book of Operative Dentistry.
- (3) Buckley-Materia Medica.
- (4) Dr. Webster—Lectures.

# A Day's Routine

Pearl Bartindale, D. N.

In order to give some idea of the advantages of having a dental nurse, may I be permitted to be personal and give an average day's routine in an office where we have ten mechanics, a part time (2 hours a day) Secretary and a dental Nurse assisting the Dentist, who is thus left free to give most of his time and energy to the actual operations.

The Dentist starts at 8 a.m. and leaves at 3.30 p.m. to give his services at the R. C. D. S.

When the nurse leaves between 5 and 5.30 everything is in readiness for the first patient in the morning. A list of the next day's patients is made out and placed on the cabinet where each operation is charted as the patient leaves the chair. The charts of these patients are all arranged in order and the nurse consults with the mechanics in order to have their work ready when needed.

The nurse tries to be at the chair side all the time she possibly can when the Dentist is operating and by listening to the conversation, studying the chart and her own observations she can tell pretty well just what operation the Dentist will do, and have the necessary instruments at hand when needed. She tries in every way to have things so arranged that all the dentist does is the actual operations in the mouth, and consultations.

As a rule the nurse shows the patient into the dressing room and while the wraps are being removed she prepares the chair by removing soiled linen, etc., and replacing by fresh linen, sterile instruments, etc.

She tries as nearly as possible to have the necessary instruments on the bracket-table just when needed and not longer than when they are needed. She mixes the amalgam, the cements, the plaster for impressions, prepares the temporary stopping, the compound for impressions of study models, the wax for bites and for inlay impressions.

The work that goes to the Lab. is labeled with the name, work

to be done and time required.

The nurse makes new appointments and dismisses the patients. When the secretary is not there, she answers the phone and the door bell.

She sterilizes the instruments, keeps them in order in the cabinet, orders supplies; makes dressings and does some bookkeeping.

She sees that everything is as clean and orderly as possible.

A good nurse must be a good house keeper, not that she should do all the cleaning herself but she should know how it should be done and see that it is done either by the janitor or some one else. A certain amount must be done by the nurse.

Personal cleanliness is just as important as the sterilization of the instruments.

The nurse should keep the supplies in such a way that she is never out of anything, but can always put her hand on the desired article at a moment's notice.

The instruments, and everything in the cabinet, should be arranged so the Dentist and nurse both know exactly where each article is.

Yesterday, an average day, we gave one Prophylaxis, four treatments, prepared cavities and put in 6 amalgam fillings, 2 cement fillings, took 2 impressions for inlays, fitted a partial upper and a small removable, fitted and cemented 2 inlays with an attachment, took 4 imps. for clasps, 1 imp. with clasps for bar lower, 1 imp. with clasps for partial upper, took 3 bites, adjusted one upper denture and had one x-ray consultation—21 patients.

## THE DENTAL NURSE

She should have, as a foundation, reasonably good health, a pleasing personality, a cheerful disposition, a pleasant speaking voice, and good teeth.

She should have a high school education, or its equivalent.

She should be a good housekeeper, and have a high sense of appreciation of the value of cleanliness and order, both personal and general.

She should either know by intuition or be taught the value of courtesy, tact, accuracy, discipline and promptness, and that *time* in dentistry is money.

Her costume should be of white, either dress or apron pattern, with long sleeves, collar up about the neck, or high V-neck. She should be immaculate.

Her hair dress should be plain and becoming, with no adornments. Her shoes should be of a sensible business type, and not of the French heel type.

Her complexion should be her own.

She should be first to arrive at the office in the morning, and should ventilate the office thoroughly in order to freshen the air therein.

She should control the temperature of the office, keeping an even temperature of between seventy and seventy-five degrees Fahrenheit—never over seventy-five degrees—and see that there is the proper circulation of fresh air at all times.

She should see that all dust that might have been overlooked by the janitor is removed, and that books and papers in the reception room are in proper order.

She should sort the morning mail, leaving only personal letters to be opened by the dentist.

Each morning she should typewrite a list of the day's appointments, and get out the charts covering the day's work, and review them with the dentist upon his arrival.

She should see that every visitor to the office is approached immediately upon arrival, and that each is made to feel that attention is being given and that the visit to the office was made more than pleasant by her having been there; that the fee charged was correct and not out of proportion for service rendered, and that the lady patients leave the office with a tidy and orderly appearance.

She should be sure to see each patient to the door.

## DUTIES IN SECRETARIAL DEPARTMENT

Keeping an accurate set of books, attending to the banking, and answering the telephone are important duties in the secretarial department.

A typewritten report should be made of all telephone calls where it was not possible for the dentist to be disturbed.

In answering the telephone, it is well to say "Dr. Johnson's office," thus saving an inquiry at once. If the party asks for the doctor, explain that he is busy, but you can probably take care of the matter. If it is impossible for you to handle the situation, say that you will take the message, and at the same time learn the caller's name before going to the doctor. This rule also holds good when people call in person. Inquire if the visit is professional. If the caller informs you that it is a personal matter, ask his name, and if he refuses to give his name, or state his business, you may treat him accordingly, as he is probably an agent of some kind, or a beggar.

If necessary to inform the doctor of a call either personal or by telephone while he is operating, write the message on a pad provided for such purposes so as not to impart information to the patient in the chair.

When informing the doctor of the arrival of a patient, do not mention the name in the presence of the patient in the chair. Write the patient's name and time of arrival in the day book, and at the back of the chair show it to the doctor.

Use judgment in keeping patients from waiting; thereby many moments may be saved in the course of the day.

The 'phone is valuable in filling broken appointments, or blank spaces in the day's schedule. There are, in all practices, busy patients who would be glad to run in for an hour, and who could be in the office within ten minutes.

To review the call list every two or three days will enable you to suggest the names of some of these patients when the occasion offers.

Enter the name of every person who calls, either in person or by telephone, in the day book. This is most important as it is a double check on the appointment book and in checking up the day's work, a reminder of persons operated on and the fee to be charged.

Keep a call list, and if a patient cancels an appointment, refer to the call list for filling in the time. By this means waste of time can generally be eliminated.

Try to remember the most convenient time for appointments for each patient. It is irritating to a patient to offer her a nine o'clock appointment, when she has previously told you she cannot keep an appointment before eleven o'clock in the morning.

Business men, as a rule, desire morning appointments or late in the afternoon, and cannot break into the busy part of the day.

Children's school hours must be considered, and appointments made to accommodate their time as much as possible by giving them late afternoon hours and Saturday mornings.

Use a pencil for writing in the appointment book, as many changes are necessary, and unless you are able to erase the notes, you will have a "messy-looking" book. At the end of the day, have a few moments' consultation with the doctor, especially in writing up the day's work. You may remember some detail the doctor forgot to enter, and by this means all charges will be entered.

A typewritten record should be made of all conversations relative to agreements to pay on dental contracts.

The Assistant should interview all salesmen and determine from their talk, who are presenting important subjects of sufficient consequence to arrange an appointment for the dentist.

Deposit checks and cash as soon after receiving them as possible, and permit a lapse of forty-eight hours after depositing before sending out receipts.

Some employers are in the habit of having an expert accountant audit the books once a month. This is a great comfort for all concerned, and at the end of the year, an easy method of calculating the income tax.

At different periods check up the last appointment of patients and send notification cards to those whose time has elapsed for prophylactic treatment, and also delinquents due for examination, and general periodical visits.

Orthodontia cases should be notified, monthly prophylactic treatments given, and appliances removed so the oral hygienist can thoroughly clean the teeth and bands.

The Dental Assistant should know how to operate the typewriter, as all correspondence and bills should be typewritten; a copy of all correspondence should be kept in an accurate file, over which she should have entire supervision.

She should see that bills are gotten out promptly at the end of each month.

She should see that all time is charged for; that the periodical appointments cards are properly placed in the monthly file, and that they are sent on time when the day arrives on which they should be mailed.

She should learn the health talk as it applies to dentistry, and teach the patients the value of mouth hygiene.

She should keep a perpetual inventory of the stock in the office and determine the quantities used of all material, and purchase such material in quantities to afford the greatest saving.

She should read all dental journals and mark articles that the dentist should read.

She should discount all bills where it is possible to save even the smallest percentage.

She should keep the cost sheet, and each month render a report to the dentist of the operating expense, the gross and net earnings of the office and the cash on hand in the bank.

She should balance the bank account each month, "okeh" and file the report.

This all comes under the daily duties of the Assistant, and if she is capable, she will attend to these things without being reminded by the doctor.

## AS ASSISTANT IN GENERAL OPERATING

She should receive all patients in the reception room; assist them with their wraps; seat them in the dental chair and see that they are comfortably positioned. Place the napkin and head cap on patient; see that all charts, models and radiographs are at hand.

Place a sterile water glass in receptacle for patient; have hot water ready; see that sprays are warm, and if patient has ever

expressed a preference for any particular mouth wash see that it is provided.

Have one place for each classification of instruments, and keep everything in its place. Keep cements of all kinds in their respective places with spatulas and varnishes.

When familiar with the prospective operation to be performed, before each sitting prepare the necessary implements by sterilizing before placing them in small sterile trays on the table tray. If the preparation is for surgical work, or root-canal work, special sterilizing will always be necessary during operation.

At the end of the appointment, when the operating room is to be prepared for the next patient, remove the linen headrest cover, and replace with a clean one. Wash the bracket table with a ten per cent solution of alcohol before replacing the sterile enamel tray on the bracket table, and place a glass tray on the cabinet for soiled instruments used during the operation. Clean the cuspidor thoroughly after every patient. Brush the floor clean of any particles that may have collected. The nurse should scrub her hands with surgical soap and alcohol before the operation, and before handling linen.

Have a sterile hand towel ready on the sterile rack for the doctor, so that he does not have to open the cabinet door. All this makes for proper asepsis, and is a saving of time in the course of the day's work.

#### AT THE CHAIR

The Assistant proves extremely valuable. As the doctor works, she dries the cavity with the hot air syringe and keeps all chips blown away. By skillfully dropping water upon the tooth she keeps all stones moist, when, without such precaution, the operation may become painful and the patient uncomfortable. A pair of pliers, cotton pellets and rolls near at hand enable her to wipe the cavity and insert the cotton rolls before the placing of a temporary stopping and to hold them in place, thus keeping the surface dry while the doctor is inserting the stopping. The Assistant then sprays the mouth and dismisses the patient.

If a rubber dam is used during an operation, a dental napkin should be folded and placed next the face as it absorbs the moisture and adds to the patient's comfort.

#### ANESTHETIC WORK.

She should know how to operate the gas machine if one is used and how to assist properly with the anesthetic. She should understand thoroughly how to change inhalers to prolong the anesthetic.

She should know what to do in case vomiting, cyanosis, or other untoward symptoms develop.

How to position the patient for the purpose of resuscitation; how to administer amilnitrate, and how to prepare the patient for a hypodermic injection.

In positioning the patient for the operation, she should see that there is no strain upon the neck muscles or veins; that the patient is in a comfortable position affording complete relaxation.

She should see that all of the instruments required for the operation are in a place convenient to the operator, and that sterile sponges and gauze are at hand.

She should understand first aid manipulation to revive the patient when necessary, and should take entire charge of the patient after the operation.

After the patient has been taken to the recovery room and wishes to lie down, it is best to have her lie on her right side, and see that she is well covered. A basin should be well under her chin so that she does not have to raise her head to expectorate. There should be plenty of fresh air in the room. If the patient feels nauseated, a glass of lukewarm salt water may be given. The best way is to have her sit up, rinse her mouth well, then drink the salt water all at once. This either settles the stomach or washes it out, and the patient generally feels much better immediately. A cold wet towel upon the face adds much to the comfort. After a few minutes rest the patient may be dismissed.

## THE X-RAY DEPARTMENT

One of the essential additions to the modern dental office is the X-ray machine. This can be made productive if the Assistant takes the pictures and develops them without interruption of the dentist's time. The Assistant should thoroughly understand the construction and operation of the X-ray machine and should be informed upon such points as positions, angles and how to avoid distortions in the film. She should also be familiar with dark-room technique which today is much simplified, and know how to develop films from start to finish.

Most of the X-ray work can be done away from the dental chair, enabling the dentist to go on with his work. X-ray pictures are no more difficult to get than good kodak pictures.

Careful attention, however, must be given to the correct technique—preparation of developer, temperature, time and washing.

Do not guess at any operation in the dark room, for in this way many otherwise good pictures are ruined.

#### THE STERILIZING ROOM

The possibility of the transmission of disease from one person to another, dentist or patient, through unclean instruments and appliances has long been recognized, and we cannot put too much stress on the necessity of thorough cleanliness and sterilization.

When a tray of soiled instruments is brought into the sterilizing room, the instruments are sorted and cement instruments are scraped clean of cement before being put into water. This pertains to steel, and will avoid oxidation. Then the instruments are scrubbed with a good cleanser, such as "Bon Ami" or "Orono" followed with soft soap and carbolic acid.

When the instruments are free from all deposits, mechanically clean and sterilize them by boiling twenty minutes, or in questionable cases thirty minutes. At the expiration of this time, the instruments are removed from the sterilizer and wiped dry while hot with a sterilized towel and lastly wiped with alcohol. These are then placed in a dry formaldehyde sterilizer or air-tight jars until used.

If there is more than one operating room, mark instruments to be sterilized beforehand, so as to avoid loss of time in sorting.

Cabinets should be cleaned once a month, and all drawers and doors kept closed at all times when not in use.

Semi-annually an expert should be called in to look over all equipment, preferably a service man direct from the manufacturer.

Each six months an inventory of the stock should be taken in order to determine the accuracy of the inventory system, to check up for leaks and to decide on quantities used.

Annually all nickel instruments should be gone over, and those requiring replating should be given that attention.

Monthly appointments should be made to oil the motors in the office and laboratory.

Once a week all handpieces should be taken off, cleaned and submerged in kerosene over the week-end.

The Assistant should prepare or assist with all State and Federal Income Tax reports based upon the earnings of the office.

She should see that all bills are gotten out promptly, both for completed and incompleted work. These should be mailed without fail the last day of each month.

The monthly report for the office should be handed to the dentist on the first day of each month.

The Assistant should visit all dental meetings and dental depot clinics, and act in advisory capacity to the dentist.

#### DENTAL LABORATORY

She should keep accurate record of all gold and material used, and see that there is no waste in these precious metals.

She should see that the prosthetic file is kept in order, and that the laboratory presents a clean and tidy appearance.

She should become a proficient helper in the laboratory for such work as plaster model making, casting, bridge work and porcelain work.

The Assistant should see that all water, gas and electricity are turned off; that all handpieces are wiped clean and oiled for the next day, and that all instruments are put away, and drawers and cabinet door closed.

Upon leaving the office she should see that all lights are turned off and doors locked.

#### SUGGESTIONS

Do not converse with the patient unless it be on necessary business. Patients are not interested in your ailments, or family affairs. The patient's time is valuable, and so is yours; and if the necessary duties are performed there will be little time left for conversation, or magazine or book reading, or for embroidering and knitting.

Study the idiosyncrasies of the patients. Try to remember their likes and dislikes. Some object to the saliva ejector, and after once speaking of a dislike, do not err by repeating the mistake at the next sitting. Some people have an aversion to the use of cotton, others to bibulous paper, linen, or rubber dam.

Study the supply catalog and familiarize yourself with the dental instruments. Some Assistants after six years' experience in an office do not know a hatchet from a hoe excavator, or ball burnishers from flat burnishers. This knowledge of instruments is very essential. If you do not know about them you are unable to place proper instruments in the correct places. Standardization in arrangement cannot be practical unless you know every instrument and its use. By careful study you will quickly learn the relation and position for each placement.

During the summer season it is good practice to prepare for the busy season by preparing supplies, making swabs and sponges, applicators, cutting of base plate gutta percha, Detroit wafers for impression cups, and any cleaning and rearranging of supply closets; filing of yearly magazines and preparing as many supplies as possible, to be ready for the busy season. Then it is a great comfort to replenish from the supply closet, and it eliminates ordering and buying when your time is taken up by more important duties.

There is always a class of patients that needs to be educated, and a competent Assistant will be a great asset in making explanations to patients when necessary. The practice of the operator can thus be benefited to a great extent.

Jokes and side remarks are out of place in the operating room. Strict attention to business and respect for the operator and patient at all times is a mark of efficiency and good breeding.

At all times keep cotton, cotton rolls, gauze swabs and applicators in glass-covered jars or dishes.

Saliva Ejectors should be immersed in a solution of distilled water and alcohol.

To keep nickel clean, it should be gone over daily with a dry piece of cheese cloth. After each patient, moisture should be wiped off the cuspidor rims, etc.

All scissors and shears must be kept sharp and in good order. A strong magnifying glass is advocated for use in finding flaws in instruments and burs. Much pain can be eliminated by the use of sharp burs and instruments.

Alcohol and cement liquids evaporate. They should be kept in air-tight containers.

Mix cements according to a definite formula so as to avoid waste. These formulas can be obtained from respective manufacturers.

When working in laboratory where it is dirty, use a dark coverall apron to save laundry.

Use small towels, about twelve inches square.

Do not use office linen for dust rags.

Do not get acid, iodine or drugs on office linen.—Ritter Mfg. Co.

# Candy Hurts Children

Dental authorities of the United States denounce the use of candy. This is the majority opinion in the survey of dentists, deans of Dental Colleges, and other acknowledged experts in that field, undertaken by Dr. Henry G. Harvitt, a dentist of 665 Fifth Avenue, New York, for the Medical Review of Reviews and to be published by them in their forthcoming number—The survey was undertaken to give the public the benefit of the knowledge and experience of recognized authorities on the influence on the teeth of candy eating and the questionnaire sent out was unbiased in its wording, covering the two questions.

- 1. What does your experience show to be the effect of excessive candy eating on teeth not cared for regularly.
- 2. What can you suggest to offset the evil inherent in the situation.

In answer to the second question the suggested means of remedying the excessive use of candy, numerous suggestions are made. Of the thirteen who recognized its evil effects eight in number believe an extended publicity campaign be waged to counteract the tendency of excessive candy eating. Their suggestions took different forms. Dr. Case believes that the education of the parents is of the greatest value. Dr. Wadsworth joins him in this belief. Dr. Hutchinson and Dr. Bunting also believe that the widest publicity to reach parents of children is the best means of overcoming the evil. Dr. Young suggests that boards of health circulars, teachers in schools, magazines, newspapers and the public press should all be utilized in accomplishing the desired end. Dr.

Kent A. Thoma of Boston expressed himself in most emphatic terms when he not only urged for publicity to parents and teachers but went a step further by suggesting that the introduction of a bill to prevent store-keepers from selling candy to children without the written consent of the parents would be helpful.

Dr. Weinburger spoke as follows:

- 1. A more rigid and thorough prophylaxis of the mouth.
- 2. The educating of prospective mothers to a correct diet, and feeding of infants.
  - 3. Regular examination of the teeth.
  - 4. And finally the restriction of the use of sweets.

Dr. Merritt, Dr. Hyatt and Dr. Williams all urge the eating of fruit after sweets. Dr. Paul R. Stillman of New York believes in regular prophylaxis as the best means of overcoming decay from sweets. Dr. Williams expressed himself rather forcibly when he said that the excessive consumption of candy by the American people was one of the most irrational and harmful habits. Dr. C. N. Johnson believes that the only means at our command is to educate the people not to use so much candy and to impress this lesson both in public print and private practice. Twelve of the authorities urge that publicity be given to this all important topic. The others advised that dentists should acquaint the parents of children as to the evils which excessive candy-eating cou'd bring.

Dr. Harvitt, in commenting on the symposium, urged that the public press and health departments shou'd do all in their power to educate the public on the danger of excessive candy eating. He further suggested that candy manufacturers and merchants cooperate with dental authorities to the extent of refusing to sell candy to little children. Thirteen of the acknowledged leaders of their profession oppose the use of candy by children. Three favor its use, and four take a neutral stand.

The thirteen who oppose it give varying reasons. Five oppose it because they say that it has been their observation that the teeth of those chi dren who eat candy are worse than others. Dr. Edwin T. Darby of Philade phia says that his experience has been that candy has effected the teeth of those children who are in the habit of eating a great deal of candy. Dr. C. N. Johnson of Chicago claims that in spite of the fact that he has no scientific proof he admits that teeth have been affected by candy. Dr. W. A. Capon of Philade phia goes a step further and says that candy also affects the gums. Dr. Milo He'man of New York inserted the word detrimental in answer to the first question.

Two men claim that candy is bad with starchy foods they say it forms the worst combination for the teeth. Pastry, for example, says Dr. J. Leon Williams is also very harmful, Dr. Austin F. James

of Chicago concurring in the opinions of Dr. Williams that candy gorging deranges metabolism, disturbs digestion and is a potential enemy to the teeth. He adds, however, that if teeth are properly cared for sugar is not harmful. Dr. Kent A. Thoma of Boston agrees by claiming that candy not only destroys teeth by forming lactic acid but it also affects the general system and interferes with the appetite. Two authorities maintain that the adhesive properties of candy are largely responsible for the ensuing ills. Sticky candy is worse for the teeth, says Dr. L. A. Young of St. Louis. Dr. B. W. Weinburger of New York explains that candy forms a large amount of fermentable substances which are gummy and in that way hold food in contact with the teeth, thus increasing the possibilities of decay. Dr. A. H. Merritt explains that candy increases the activity of bacteria in the mouth, in that way producing a more rapid destructive process of decay. The eating of candy causes a thick saliva which favors fermentation, says Dr. R. W. Bunting of Ann Arbor, Michigan Dr. T. Hvatt says that the unnatural quantity of sugar in candy and the way in which it is prepared are harmful to the teeth.

Two specialists claim that candy is an important element of the diet and is conducive to general and dental health. These men are Drs. Coolige and Case of Chicago. Their opinions are identical. Two specialists maintain that candy is less injurious than other foods such as crackers and starchy foods which contain white flower Dr. R. Hutchinson, Jr. of New York and Dr. Dewey also of New York agree on this subject, although the latter modifies his statement by saying that the excessive use of candy produces digestive and nutritional disturbance. Dr. Wadsworth of Chicago and Dr. Essig of Michigan both agree that candy in moderation is not injurious, but if excessively done, especially eating between meals, produces digestive disturbances. Dr. Eugene Smith of Harvard also testifies to the correctness of this statement.

## **Dental Societies**

WINNIPEG DENTAL SOCIETY

The Winnipeg Dental society elected officers for the current year at a business meeting held after the monthly dinner of the society at the Fort Garry hotel. They are: President, Dr. E. R. Bier; vice-President, Dr. A. E. Clint; secretary-treasurer, Dr. D. A. McCarten; committee, Dr. A. E. Carmichael and Dr. H. W. Mitchell.

The functions of preventive dentistry as promoted by the profession today were enlarged upon by Dr. Harry S. Thomson, of the department of dental research of the University of Toronto. He explained how dentistry has passed through the periods of extraction and of conservation of the teeth, and is now engaged through the voluntary efforts of the Canadian Oral Prophylactic association, in spreading education along dental lines.

The association has 62 practising members in this city alone. It strives to bring the inordinate value of the prevention of dental defects to the attention of authorities and public alike. Results of five years tests in certain schools have demonstrated that the cost of the re-education of children in the year 1912 amounted to 42 per cent. of the budget; and in 1918 this cost had been reduced to 17 per cent., a saving of 59 per cent. Dr. Thomson claimed that through the provision of proper medical and dental supervision of children in the schools their progress through the grades would be so facilitated that in almost any city the school budget could be reduced considerably. The test taken showed that the number of children failing to pass their examinations for promotion was reduced in some grades as much as 50 per cent. The care exercised and the treatment given, mainly along educational lines, reduced the decay of teeth in 15,000 children by 33½ per cent.

It was suggested, therefore, that "as a conservation of health and money, every city in this province should, as soon as possible, establish and maintain school clinics for the treatment and filling of teeth for children."

Dr. Thomson is being sent through Canada addressing dental societies with a view to bringing about a campaign of education promoting the preventive measures of dentistry, an educational work undertaken by the Oral Prophylactic association. As illustrating what can be done, he stated that Dr. Henry Cotton, director of the hospital for major mental diseases in New Jersey, states that during the nine months since the establishment of the department caring for the mouths and adjacent parts, the hospital had discharged 87 per cent. of its patients, whereas in the ten years previously the highest percentage ever attained had been 43 per cent.

#### HAMILTON DENTAL SOCIETY

The annual meeting and election of officers of the Hamilton Dental Society was held at the Royal Connaught Hotel on April 25th. The dentists were out in force and they were rewarded by being privileged to hear an address on "Dental Economics" by Dr. Gordon McLean of Toronto. The address was illustrated by a number of very interesting slides and it proved to be one of the most informative talks the society had heard.

The retiring president, Dr. J. A. Locheed, occupied the chair, and at the conclusion of the luncheon he spoke briefly, expressing appreciation of the help received from his fellow officers during the year. He touched on the progress which has been made by the society during the year. The election of officers resulted as follows: Honorary president, Dr. J. A. Locheed; president, Dr. W. G. Thompson; vice-president, Dr. O. S. Clappison; secretary, Dr. A. V. Lester; treasurer, Dr. Arthur N. Hill; educational committee, Drs. W. G. Thompson, F. L. Williamson and C. C. MacLachlan; entertainment committee, Drs. J. E. Johnston, F. P. Moore, H. A. Robertson and G. W. Everett; program committee, Drs. O. S. Clappison, J. N. Stewart, A. V. Lester and W. H. McLaughlin; ethics committee, Drs. W. J. McEwen, J. N. Stewart and C. M. Ross; picnic committee, Drs. W. G. Thompson, F. L. Williamson, F. P. Moore, J. E. Johnston and H. A. Robertson; auditors, F. Nansee and D. J. Weadick.

## VICTORIA DENTAL SOCIETY

At the annual meeting of the Victoria Dental Society Mr. Henderson and Mr. Rogers were the honored guests. Dr. R. Ford Verrinder on behalf of the Dental Profession expressed regret at the approaching departure from the West, of Mr. Henderson, who, for the past twelve years had so well represented the dental supply firm of Temple Pattison Co. Mr. Henderson had been promoted by the firm to the position of Dominion sales manager, necessitated his making Toronto his future headquarters. At the conclusion of the address Mr. Henderson was presented with a handsome leather-bound desk clock, suitably engraved.

In acknowledging the gift the recipient thanked the members of the society for many favors shown him, and assured them of continued interest in their welfare, expecting to have the privilege of returning to British Columbia on periodical visits. He bespoke for Mr. Rogers, his successor, a continuance of the splendid confidence that had always been placed in him throughout his years of service on this coast.

#### VICTORIA DENTAL SOCIETY OFFICERS

President William Russel, Vice President R. E. McKeown, Secretary, E. W. Hetherington, Treasurer B. Cummings Richards, Executive Committee, H. Hare, W. N. Gunning, Geo. J. C. Walker.



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Vol. XXXIV

TORONTO, MAY, 1922

No. 5

# The Late Frank Woodbury

In this issue appears an obituary of the late Frank Woodbury, from the pen of a confrere who knew him well. There are also tributes to his memory from professional friends and nearby associates, as well as recognitions of his worth as a citizen, a Christian, and a humanitarian.

The Dominion Dental Journal lost one of its most loyal associate editors in the passing of the late Frank Woodbury. In one of the recent issues appears a tribute from his pen to the late Dr. H. R. Abbott of London, Ont., a friend and associate for many years.

The history of dentistry is really the history of its great men. Among these stand out the names of Spooner, Beers, Willmott, McInnis, Abbott, and Woodbury. While Dr. Woodbury was essentially a dentist, around which profession centred his main activities, yet he had time and thought for many other affairs in life; church, state, Sunday School, Education, charity, agriculture and horticulture all receiving a share of his keen mind and untiring energy.

No member of the dental profession in Canada had a clearer conception of the advantages of the organization of the profession,

both locally and nationally. He offered the most useful and constructive help in bringing together the representatives of the various provinces of Canada to organize the Dominion Dental Council. Under his presidency the Constitution of the Canadian Dental Association was re-drafted and finally passed at the Ottawa meeting in 1920. His share in both the legal and voluntary organization of the Canadian profession will stand as a monument to his memory and an everlasting benefit to the people of this country.

Dr. Woodbury's life should stand out to young men as a beacon light to guide them in the way of accomplishment. Never physically robust but always able to do more than his confreres, the profession mourns his loss but is proud of his achievements. He was taken away at the zenith of his career and at a time when his counsel was much needed and yet, in God's providence, his work was done.

## **Editorial Notes**

The graduating class of the Royal College of Dental Surgeons held their final Banquet at the Carls-Rite Hotel April 27, 1922. It was the largest class banquet held by the College and the most enthusiastic. Addresses were delivered by members of the Board of Directors, the staff and new graduates. Mr. Joseph A. Dietrich acted as toast-master.

Stratford, Ontario, has decided to have a dental clinic with Dr. Sebben in charge.

Dr. C. S. Patton, St. Stephen N. B. died Saturday, April 8th., 1922. Dr. Patton was a native of St. John.

Drs. Gies, Wait and Foster, investigating members of the Carnegie Foundation, visited Winnipeg on their Western Canadian tour. They were entertained by the Manitoba Board and the city dentists. The impression was left that a dental College ought to be established in connection with the University of Manitoba.

## **OBITUARY**

# Frank Woodbury, D.D.S., L.D.S., L.L.D.

The death of Frank Woodbury, D.D.S., L.D.S., L.L.D., Dean of the Dental Faculty of Dalhousie University, Halifax, N.S. occurred at midnight of February 4th, 1922, after a very brief illness.

He is survived by a widow, formerly Miss Jessie B. Troop, of Annapolis County; two sons, Dr. Karl Fairfield Woodbury, who graduated from Dalhousie, served overseas during the war, and entered partnership with his father, and Dr. Frank V. Woodbury, M.D., who established his practice in Halifax when he returned from the front; and one daughter, Miss Gladys Woodbury, Mrs. Dr. Bell, of Kingston, King's County, is a surviving sister.

The burial was in Pine Grove Cemetery, Middleton. It is in this beautiful cemetery that many generations of the Woodbury family lie at rest. There was a memorial service at Grafton Street Methodist Church, Rev. Dr. Bond, the pastor, having placed the church at the use of the University authorities and associates of the late Doctor in church work. President Mackenzie of Dalhousie spoke, and short addresses were also made by Mr. E. G. Smith, of Brunswick Street Methodist Church and Dr. C. B. Borden, President of Mount Allison University, of the Board of Regents of which Dr. Woodbury was a member.

## LEADER IN SUNDAY SCHOOL VORK.

The deceased was a Vice-President of the American Institute of Archæology, Halifax, Director of the School for the Deaf, and chairman of the International Committee of Sunday School Work in West Indies and South America. It was in this last work that Dr. Woodbury spent time and money with a devotion and a mental grasp that won him a foremost place among the Sunday School educationists of this continent. He was a member of both the World's and International Sunday School Committees. On one occasion he headed a Sunday School tour to South America and the West Indies. His immediate home work in this respect was enormous. He was Superintendent of a Methodist Sunday School in Dartmouth, in which town he lived for seventeen years. He presided over the Sunday School of Brunswick Street Methodist Church for many years, and latterly Grafton Street Methodist.



#### A PROMINENT METHODIST

Dr. Woodbury had a deeply religious nature and from early youth was closely associated with the Methodist Church in all its organization and work. When he came to Halifax thirty-eight years ago he was connected with Grafton Street Methodist Church. He then moved to Dartmouth, severing his connection with the city church and throwing his efforts into the church at Dartmouth. Returning in after years to the city, he was a leading member of Brunswick Street Methodist Church, and in recent years, while living in the south end of the city, renewed his association with Grafton Street Methodist. It was in that church in the earlier days of his life, where together with his brother, the late Dr. Hibbert. Dr. Frank Woodbury inaugurated a memorable evangelistic band to which many men and women since prominent in the city's Methodism were members. In that branch of the Christian Church in Halifax Dr. Woodbury was a force to be considered, and the effect of which will not spend itself but be felt for many generations. In politics Dr. Woodbury was a staunch Liberal.

#### TRIBUTES

F. W. Ryan, D.D.S., L.D.S., Acting Dean, Dalhousie University, Halifax

The death of Dr. Frank Woodbury of Halifax, N. S., about midnight of February 4th, 1922, is an event of more than passing import to the Dental Profession of Canada. It marks the withdrawal of an influence which for nearly four decades has been a potent dynamic in the development of Canadian Dentistry.

It may be of interest and perhaps profit to note some characteristics that have contributed to Dr. Woodbury's distinction. One can scarcely fail of being struck by his sense of Responsibility, his aptitude for Organization and Administration and his belief and faith in the Power and Efficacy of Education.

The exercise of these traits upon the environment in which he lived and the reaction of life's experiences have resulted in the development of a character true in intuition, ripe in experience, rich in enthusiasm, and sane in judgment.

Early in life he was imbued with the conviction that Life was a trust, and that he was responsible to the "Giver of Life" for what he did with it, how he used it. This lent a tone of seriousness to his character. He could not follow the "Primrose Path," he must do something worth while, worth doing. He had to render an account of the talents with which he had been endowed. His religion was no mere ebullition of emotion. It was fundamental, a root from which were evolved those "Fruits of the Spirit" that have begotten the admiration, respect and esteem in which he was held.

1853. He was born at Wilmot Springs in Annapolis County, Nova Scotia, of Loyalist stock we are told, and as a youth attended the common schools of the country.

1869. He obtained a teacher's license at sixteen years of age and the following year like many another Canadian youth in the pursuit of fortune, emigrated to the United States. There he entered the office of A. I. Perkins, Esq., D. D. S. of Amesbury, Mass.

1873. Impelled by his desire for effective service he sought the Church and entered Mount Allison University, N. B. to study for the ministry. Trying to take two years in one, his physical endurance was over-taxed. His eyes gave him so much trouble that he abandoned the course in Divinity and returned to the United States and for a time taught school at Farmingdale, N. Y. where his sister lived. When his eyes had recovered fully he gave his attention to Dentistry.

1878. He entered Pennsylvania College of Dentistry, was graduated and began practice in Babylon, N. Y.

1880. Having decided upon his avocation in life he married a daughter of Valentine Troop, Esq. of Annapolis Co., N. S., Miss Jessie B. Troop, a faithful helpmate in life, who with her three children survive him.

1884. With his elder brother, Dr. Hibbert, he established a practice in Halifax, N. S. in which City he resided until his death.

When he began practice in Nova Scotia, Dentistry was not the organized, standardized and Government controlled Profession it is to-day, but an inarticulate, inchoate and irresponsible body of practitioners. Sundry attempts had been made to secure legislation to control the practice of Dentistry, notably by Dr. Alan Haley when a member of the House, a copy of which Bill is in the Archives of the Dental Association,—but all attempts had signally failed of enactment.

1891. To the instigation of the late Dr. A. C. Cogswell and the characteristic perseverance and determination of the late Dr. Woodbury is due the placing on the Statutes of Nova Scotia. 1893 "An Act to regulate the Practice of Dentistry." He was a member of The Dental Board therein constituted up to the year of his death. Dr. Woodbury's interest in the newly created Association was very keen. He spent much time and labour in perfecting its organization. In the prosecution of this work his vision widened. He read a paper before the Association on the subject of "Reciprocity between the Dental Boards of the Dominion." Resolutions were adopted and correspondence instituted but the response was discouraging. The time was not ripe.

1899. In a Presidental address to the Association he advocated "Affiliation with the Halifax Medical College" in the interest of high-

er education of Dentists and Dental Students. 1901. Resolutions were passed and Committees appointed but like the former this suggestion suffered a more or less still birth. Both were destined however to bear abundant fruit. More or less correspondence had been kept up on the subject of Reciprocity and a paper appeared in the Dominion Dental Journal by Dr. S. W. McInnis of Brandon, Man. on the subject of "Nationalization of Dental Standards." His scheme was not feasible but the seed fell on fertile or prepared soil. time was opportune. A National Convention of Canadian Dentists. to meet in Montreal, was being advocated by the Dominion Dental Journal. Each Provincial Registering Body was asked to send a representative to meet with other representatives in Montreal at the time of the General Convention to endeavour to formulate a scheme of reciprocal registration on a basis of consent and agreement to a standard and without necessity of special Legislation. 1902 Various Boards by resolution agreed to the proposed scheme and at a subsequent meeting in Toronto a Constitution was adopted, officers elected and the Dominion Dental Council formally launched upon its mission 1904. Dr. Woodbury's interest was keenly aroused. He was the representative from Nova Scotia and continued uninterruptedly in that capacity until his death. He was the Second President and those who knew him well can trace his handiwork in the Constitution and character of the Dominion Dental Council, possible the first organization to produce a standard of Dental Qualifications national in scope. Dr. Woodbury closely observed and frequently visited the Dental organizations of the United States. He has many warm friends there and was the first Canadian Dentist to be made an Honorary member of the National Association.

While his interest was keen in National and International matters pertaining to Dentistry, it was with the Profession in his native Province that his "intensive husbandry" was most manifest.

1905. A joint Committee from Dalhousie University and the Halifax Medical College approached the Committee on affiliation and Education of the Dental Association to discuss the feasibility of Dental Education in Halifax. As a result of these deliberations permissive Legislation was obtained and an active canvas of the question undertaken in which Dr. Woodbury bore a leading part. A couple of years later the Provincial Dental Board, with assistance of the University and the Halifax Medical College established the "Maritime Dental College" as a teaching Faculty with Dr. Woodbury as its Dean. He was an ardent promoter and one of the founders of the Halifax Dental Society and participated in the first systematic inspection of the mouths and teeth of the children in the Halifax Schools which was undertaken by Volunteer Dentists under the auspices of the Educational Committee of the Dental Association and of the Halifax Dental Society.

1906. Elaborate reports and statistics were prepared and submitted, but it took ten years of deliberation before the School Commissioners succeeded in establishing a School Dental Clinic with

regularly appointed and salaried Dentists in charge.

1908. The establishing of a Dental College in Halifax in a sense may be regarded as the consummation of Dr. Woodbury's hopes and labours in the interests of his profession. His intense interests and gratification over the enrollment of the first class of students was exceeded perhaps by that experienced in the year of their graduation. These were epochal years in Dr. Woodbury's life as they were for Dentistry in Nova Scotia. 1912. Not only had it been demonstrated that it was no longer necessary to go abroad to obtain a Dental Education—but the Governors and Senate of the University were made to realize that there was a demand for dental education and another field opening for University Activity. They took over the College from the Dental Board, made it a full Faculty of the University and thus became responsible for its teaching as well as its standards of attainments. Dr. Woodbury was retained as Dean and little change made in the teaching staff.

and Professional matters must take secondary place to Patriotic and Humanitarian Activities, and the yet darker days subsequent to the terrible Halifax Explosion. 1917. Out of the generous response of a sympathetic people moved to relieve a serious affliction, has arisen a most beneficient Agency—The Massachusetts-Halifax Health Commission. 1918. On that Commission, in an Advisory Capacity, Dr. Woodbury represented the Dental Profession and with the Oral Hygiene Committee of the Dental Association, rendered to the Director most valuable aid and advice in the establishment of a Pre School Age Dental Clinic in Health Centre No. 1, over which a graduate of Dalhousie Dental Faculty presides.

1920. On the occasion of its Centenary Celebration the University of Dalhousie conferred upon Dr. Woodbury the Degree of LL.D., a distinction it is believed that is carried by less than half

a dozen living dentists in the American Continent.

In this year was founded the Dental Faculties Association of Canada—Dr. Woodbury was its first President, a position held at the time of his death.

1922. In January of the present year at Montreal, he attended a meeting of "The American Institute of Dental Teachers" of which he has been a member, representing Dalhousie Dental Faculty for a number of years. Hurrying home he entered upon a strenuous endeavour to facilitate the investigation of the School and its methods of teaching by the Carnegie Commission, which proved most exacting and exhaustive and entailed much work upon the Dean.

The Commission was tendered a banquet by the Chairman of the Board of Governors which developed into a pleasing tribute to Dr. Woodbury. The Visiting Guests vied with the Governors, the Deans and the Dons of the University in doing honour and awarding praise to Dr. Woodbury and the School which he had builded. It was the last notable function he attended. The wish he had so often expressed that "He hoped to wear out rather than rust out" was nearing fulfillment.

He had practically reached the allotted span of "three score years and ten" and with the praise and plaudits of those whose opinion he most valued ringing in his ears, in happy contemplation of improved facilities and increased usefulness of the School for which he had spent himself, "He fell upon Sleep."

He laboured long and achieved much for his profession, but it can hardly be gainsaid that his richest legacy is the influence and the example of the life that he lived.

And so for what he has done and for what he was, we lay our tribute at the feet of the late revered Dean, Dr. Frank Woodbury.

#### Joseph Nolin, D.D.S., L.D.S., Montreal

It was at the first meeting of the Canadian Dental Association, held in Montreal in 1902, that I first met Frank Woodbury.

His quiet, unassuming, almost diffident manner of approaching strangers, immediately appealed to the Latin in me, thanks, no doubt, to the eternal law of contrasts. A friendly chat, an argument about some obscure professional problem, a short but charming conversation on classics and idealism in art, all taking place within a few hours, were sufficient to make us friends for life.

We only met now and then, at Canadian or teachers meetings, but at every crossing of our roads, his genial personality impressed itself more and more on my mind, until I came to look forward to every occasion when it would be my privilege to meet him as a day to be marked with a red letter on the calendar of life.

Again, last January, he was one of our honoured guests at the American Institute of Dental Teachers convention, in Montreal. He presided at a meeting of the Canadian Dental Faculties which ended with the last hour of the convention. As the remaining visitors were departing, one by one, for their homes, he was the last one to whom I bid farewell.

Oh! the shock, a few days later, to be brutally apprised of his death by the newspapers.

Dear friend Woodbury, your friends must have been legion, for to know you was to love you. But among the many hundreds of your confreres who mourn you, few feel more keenly what your death means to the Canadian profession than those of Montreal and the Province of Quebec, whether French or English.

In testimony of their love and admiration for you, allow me, their humble interpreter, to tender your family and fellow workers the expression of their heartfelt and profound sympathy.

#### President Mackenzie, Dalhousie University

My first feeling on learning of the death of Dr. Frank Woodbury, was one of personal loss. The passing of one with whom I had been so closely associated and whom I had come to admire so greatly as a man and as a citizen, and whose friendship and esteem I valued highly, brought a feeling of sadness which I know many hundreds of men will share with me. His going will leave a distinct gap in the ranks of those in Halifax who go about doing good. Service was no mere catchword in his case.

To Dalhousie University and to its Dental Faculty particularly. the loss of Dr. Woodbury is a very heavy blow. As the Dean of the Faculty of Dentistry, he has been a great source of strength in the carrying on of that department, both as a teacher and as an administrator. Without detracting in any way from what is due his colleagues, one can say that the starting of a Dental College in Halifax sprung from the inspiration and vision of Dr. Woodbury and that its rather phenomenal success is greatly due to his untiring energy and labor in its behalf. To it he sacrificed many of his personal interests, and even himself. No one outside of the University knows how much of his time and thought and strength he gave to building up of the school which he started fourteen years ago, for he spent himself in the service. The time he gave to it had to be stolen from the busy days of a professional practice. But it was a labor of love, for he saw that the work was to be done and felt that he must do his part.

Simple and unassuming by nature, he did not do his work for praise, but he had it in full measure, especially a week ago on the occasion of the visit to the University of five dental experts who came to study the standing of the Dental School, for the Carnegie Foundation. There is no doubt that at that time, Dr. Woodbury overtaxed his strength, but it was like him to not consider himself when service was the alternative. His name will be forever associated with the Dental School, which is his monument.

## Rev. Dr. Bond, Grafton St. Methodist Church, Halifax

I have known Frank Woodbury for nearly half a century. We were both in the early twenties when we first met as students at Mount Allison College, I in my closing year and he a new student. After Commencement he entered upon professional studies in

Philadelphia and I went to Newfoundland as a Methodist Minister' We did not meet again for more than ten years. He was then practising his profession in Halifax.

When I came as a pastor to reside in Halifax over thirty years ago, our friendship was renewed. He was then in the prime of life, in the exacting and unceasing toils of a busy profession, but with a wide outlook upon, and an active participation in the activities of citizenship, not only civic but provincial; and with a self-sacrificing and unswerving devotion to the interests of the church of which he was a member, and the spread of the kingdom of the Master whom he loved.

For Frank Woodbury was a Christian. He was that when I knew him first at Sackville. He was that in the stress and struggle of his maturity. He was that in all the successes that came to him, in all the responsibilities that devolved upon him, in all the affection and respect and honor which his friends and fellow citizens accorded him, in the ripeness of his influence, and in the closing years of his life.

He was not an ordinary Christian. He could not be ordinary in anything he undertook. He could not be an ordinary dentist or an ordinary citizen. Least of all could he be an ordinary follower of that Divine Lord to Whom he felt his utmost love and gratitude were due, not in the profession that may be formal and cheap, but in the confession that cannot be other than practical and costly. Indeed he was a Christian first, midst, last. It was not with him a religion tacked on to life, it was life's dominant chord, life's essential dynamic. He looked at everything from the Christian standpoint, he engaged in everything with a Christian motive. Yet he made no loud profession of superior sanctity. There was not a particle of the "Stand aside, I am holier than thou." Nothing was further from him. Yet every one knew that he was a Christian. They felt it in the atmosphere that surrounded him, in the spirit in which he lived his life.

In his church work, he devoted himself especially to the interests of the Sunday School. He was an accomplished teacher. He was an especially successful Superintendent. Those who knew Dartmouth Methodist Sunday School during the years of his leadership in them will bear witness to that. He was the most widely read and thoroughly versed man in what may be called the technique of Sunday School teaching and management, that there was in the province. And during the years when he was provincial head of the International Sunday School Association, the methods and management of the schools of Nova Scotia, took perhaps the first rank in Canada.

The Woodbury brothers were partners not only in business but in Christian work. When Hibbert died, a few years ago, he was widely missed and mourned. Now Frank has gone, and there are many saddened hearts and emptier lives. For there are not many like them. Perhaps, take them all in all, we shall hardly look upon their like again.

# Dr. W. A. Hicks, Calgary

Dr. William Albert Hicks aged 44, a resident of Calgary for the past twenty years, one of the most prominent and best known dentists in Alberta and also prominent in Masonic circles, died suddenly on Apr. 13th., after an illness of a month.

Dr. Hicks was born in Perth, Ont., and took up his residence in Calgary in 1905, in which year he embarked on his dental career in this city. For some time past he had been the dental officer in charge of the Alberta territory of the soldiers' civil re-establishment branch, and has thus gained not only a local but also a provincial reputation.

He received his dental education in the University of Toronto. He has been practising his profession steadily until some time ago, when he was forced to refrain from his work, owing to ill health.

The deceased was a well known local Shriner and was one of the first members of Ashlar Lodge No. 28, A. F. & A. M., having joined a short time after the lodge was formed in the city in 1907.

Besides being prominent in dental and Masonic circles, the late doctor was one of the city's leading sportsmen. For many years he had been an ardent sport enthusiast, and a loyal sponsor of both amateur and professional sport in the city and province. Many years ago he was active in the promotion of the game of lacrosse in Calgary and many of the old enthusiasts who endeavored to place the game on its feet will recall the active and loyal interest and backing accorded Canada's national game by Doctor Hicks.

A Masonic funeral service was held in the undertaking parlors of Graham, McCall & Brennan and the body shipped to the old home in Ontario. Dr. Hicks was not married and is survived by two brothers and one sister, Frank A. of Toronto, James A. of Montreal, and Mrs. Goodman of Toronto.

FOR SALE—Ritter Dental Lathe—A. C. 110-60; in excellent condition. Apply J. D. Brown, 647 King St., East, Hamilton, Ont.

FOR SALE—\$5,000 practice. Good town and best district in Alberta.

No opposition. Bargain. Address A. T. I. N., c/o Temple Pattison Co., Edmonton, Alberta.

# Dominion Dental Journal

Vol. XXXIV.

TORONTO, JUNE, 1922

No. 6

## ORIGINAL COMMUNICATIONS

# Convocation Address, Royal College of Dental Surgeons, May 26th, 1922

A. W. Thornton, D.D.S., L.D.S., Dean Dental Faculty McGill University.

Persons who are in the habit of giving addresses, frequently find, after the event is over, that they could very appropriately use the well-known phrase:—"We have done the things which we ought not to have done, and we have left undone the things which we ought to have done."

Lest I should leave unsaid some of the things which I should say, permit me at the very beginning of this address to express my gratitude to my former friends and confreres—the members of the Faculty of the Royal College of Dental Surgeons, for their great kindness in inviting me to be with you on this occasion.

For twelve or thirteen years it was my great privilege to labor with many of these men in the institution which is specially represented in the function of to-night.

In recent years your school has grown large and important, and while this growth and importance is largely due to the men who are now in charge of its activities, it must not be forgotten, that wise men laid the foundation of this Institution, and of these men it may be truly said: "They rest from their labors, but their works do follow them."

It has been my good fortune for the past twenty years to be somewhat closely identified with the educational work in Dentistry, both in Canada and in the United States. I would be very remiss in my duty, nay further, I would be guilty of ingratitude, if not of a lack of common honesty, were I to fail to say that the Dean of the Royal College of Dental Surgeons—Doctor A. E. Webster,—is recognized in Canada and the United States, as well as beyond the seas, as one of the san-

est, as well as one of the most influential men, connected with the Profession of Dentistry at the present time. And yet he alone could not have wrought the great work which has been accomplished in Toronto in the building up of the Institution known as the "ROYAL COLLEGE OF DENTAL SURGEONS."

Your Superintendent and teacher—Doctor Seccombe,—has had his full share in the work and responsibility, and is entitled to his full share of the honors.

Of Doctor Walter Willmott, "the worthy son of a worthy sire," no more fitting words could be found to describe his work than the well-known phrases: "Instant in season and out of season"; "In labors more abundant."

Time does not permit me to go further in this line, but I have been back and forth many times during the past ten years, and I have observed this fact, of which I think it is only right that mention should be made, that it is quite apparent that perfect harmony prevails in the Faculty, and without this element of harmony success in any institution of this kind is impossible.

But I am here primarily to address the Graduating Class. What can I use as a Foundation or Commencement, for an address on such an occasion? As I thought of this question and of this occasion, there came to my mind the well-known words of the great Apostle to the Gentiles: "I have fought the good fight—I have finished the course."

I am sure that every student of the Graduating Class to-night is willing to admit that there has been a strenuous fight during the past four years. Of course we who are in touch with this work, year after year, are quite conscious of the fact that some students take this fight much more seriously than others. It would appear always that some men (and some women too) are determined to have administered unto them an "abundant entrance" and it is quite apparent also, that in every class, there are some who are quite content to be saved "by the skin of their teeth."

Perhaps however the latter class, as they look into the future, comfort themselves with the cheering statement that "the last shall be first."

However, as I look into the faces of the Graduates of the present year, I think I am safe in saying that one and all of you are willing to adopt as your motto to-night, that well-known phrase: "Forgetting the things which are behind."

And yet I would not wish you to take these words too literally. You are perfectly justified in forgetting some of the struggles and some of the unpleasant features, common to the life of all students. I have no doubt that some of you will be glad to forget the times when you had a Cafeteria meal in some resort well patronized by students, when, if it might have been possible and justifiable, you would have preferred to dine at the King Edward Hotel. You will be pardoned too, if you blot from your memories the times when you were tempted to send a dozen American Beauty roses to "the only young lady in the world," but prudence, and the state of your finances, prevented you from committing any such folly. You will be excused too, if in the future you forget that those at home reminded you occasionally that all the finances of the family should not be bestowed on one member, who, it was quite possible, they thought, was spending altogether more than was necessary in the white-way, on Yonge St.

Yes, forget these things if you will; but do not forget the great underlying principles, that for four years your Professors have labored so faithfully to instill into your minds. Many of the things to which you have listened hour after hour, and day after day, and which during lecture period you may have been tempted to think irrelevent and unimportant, will come to you with startling vividness, when you come to face some of the difficulties and perplexities inseparable from the life-work of your profession.

In your work from day to day, you will come into contact time after time with the ordinary routine things which require little, if any thought—the thing which every ordinary man can do, because it is an ordinary thing, and demands no particular thought or attention or ability. But on the other hand, time after time, day after day, year after year, there will come to you for treatment, patients whose condition demands not ordinary thought, but extraordinary thought; not ordinary ability, but more than ordinary ability; not care and attention of a perfunctory kind, but conditions demanding the closest attention—the most careful thought—the most skilful operations which it is possible to perform; and at such times it will be well to think back to your student days when these difficult matters were discussed by your Professors and to the underlying principles governing such conditions, and on which principles the treatment of your patient must inevitably rest.

It is under such conditions that one underlying principle—one cardinal virtue must govern the relationship existing between you as a professional man, and a suffering patient, appealing to you for honest and intelligent treatment. That underlying cardinal virtue, that virtue sometimes, I fear too frequently lost sight of, is the one of which we speak in the homely but significant term as "Common Honesty."

Sometimes indeed you will be at an absolute loss to know what to do and what to say to your patient. DO NOT BE AFRAID OF THE TRUTH, and sometimes it will be necessary for you to summon all your courage and to say truthfully to your patient: "I do not know what your trouble is, and I am not sure what treatment should be followed." At such times take time to think—consult with your Professional Brethren—write to the men in charge of the Educational work of this Institution—state the conditions of the case or your difficulty in dealing with them, and I am perfectly certain that their advice and assistance will be at your disposal.

But before adopting this measure, try to think out from the principles which you have been taught in your course, the solution of your difficulty. The educated man is the man who has been taught to think.

A few weeks ago a great surgeon gave an address to the staff of the Montreal General Hospital—that man was Mr. Carliss, for many years Chief Surgeon in the King's Hospital, London, and the author of what is, perhaps, the greatest book on Surgery ever published. He spoke of his association with Lister and of Lister's work in Antiseptic Surgery. In plain, simple language, without any attempt at camouflage or ostentation, this great man spoke of the wonderful change brought about in major surgical operations, by the work of Lister, the great British Surgeon, who made possible the wonderful things now spoken of as Modern Surgery. I would like to give to this class to-night the closing sentence of that address. Mr. Carliss said in concluding his remarks:—

"I quite realize that I am speaking to-day to men who are known to the world as physicians. It is important that you should know all that it is possible to know of *Medicine* and Surgery in order that you may prolong life, lessen suffering and restore to health those who are diseased. This is your work in life." "But above everything else," said Mr. Carliss, "a physician should be a gentle man, not a gentleman as this term is ordinarily used, but a gentle man—one who deals

gently with his patients; those who come to him for advice and for treatment. The greatest man whom the world has ever known was spoken of as 'The Great Physician.' Much of the work which He did, you are expected now to do. Carry into your work the same gentleness of spirit which characterized The Man of Galilee, of Whom it was said: 'Seeing the multitudes He had compassion on them.''

I would like to commend to the Graduating Class to-night the words of this great British Surgeon.

Up to this point I have spoken to you as Dentists, and of the work which, as Dentists, you will be required to do for the patients whom you hope to treat. I think I am safe in saying that no Class ever graduated from this Institution, knew as much, on the night of their graduation exercises, concerning their own specialty, as you do.

The reason for this is quite obvious. No day goes by that some new thought is not added to the sum total of our professional attainments. Next year's class should be better than this year's, for they are standing on your shoulders—they have a chance to profit by your mistakes—by avoiding them, and they will have the advantage of the new truths which will appear before their Graduation Day, a year hence.

You must bear in mind that perhaps no profession of the present day has changed and advanced to so great an extent as the Profession of Dentistry. While of necessity, much of our work is of a reparative nature, even the readers of the ordinary literature of the day are aware of the importance which is being attached to mouth conditions and to the importance of these conditions in their relation to general health.

Because of this change and advance, and because of the recognition of the necessity and importance of mouth hygiene, it is absolutely imperative that you students — men and women, should in the broadest sense of the word, continue to be students. If you fail at this point, the man who graduates five years hence will be so far ahead of you in professional attainments that you will find your best patients slipping away from you and going for treatment to the more recent graduate.

This is neither the time nor the place to enter into a discussion on the relation of focal infection to systemic disease. This broad principle must however be fully recognized: that the human body, composed as it is of many parts, is after all

an entity—one and indivisible, and that the whole body suffers in sympathy with the suffering of any of its component parts.

This fact has in recent years been so thoroughly demonstrated that I need not enter into any elaboration of this well-

recognized truth.

My advice to you then is: continue to be a student—keep up with the times—make it a part of your regular professional life to attend professional meetings and to take part in, and make contribution to, these professional gatherings. The men who fail to observe these rules of life, very speedily, more speedily than they themselves think—become back-numbers.

A short time ago I was standing before one of the buildings of Columbia University in New York. My attention was drawn to a sentence carved in stone above the door. The sentence was: "Erected for the students, that Religion and Learning may go hand in hand, and Character grow with Knowledge." As I read these words I asked myself this question: "Do these words truthfully represent that for which our Dental Colleges stand in all their varied activities?

After a good many years of close association with the work of our Dental Colleges both in Canada and in the United States, I am persuaded that these words express the wish of every person connected in any way with the teaching or management of the various Dental Schools and Colleges of this Continent. To be deficient in knowledge is to carry a serious handicap in the race for social, commercial, and intellectual pre-eminence; to be bankrupt in Character means failure to succeed in the things worth while.

Is it too much to expect that from this Graduating Class there will go out a number of men and women with a vision, who will go out "not to be ministered unto, but to minister"? The great need of the world to-day is trained leadership. Will the Graduating Class of to-night supply its quota of trained leaders? It makes little difference where you may choose to be located, the demand for the kind of service which you have been trained to give is so great that you will find abundance of practice if you are the right kind of a Dentist.

And in every community there are problems to be solved and service to be rendered, and the problems and the service differ very little in different centres. You will find in every community an Educational problem, because education and scientific knowledge are advancing so quickly, and ministering so greatly to the comfort and the necessity and the enjoyment of the people generally, that more and more these things must be controlled and fostered by wise men and women who have been carefully trained.

To-night the importance is being laid upon the fact that you are Dentists—to-morrow the important thing will be that you are a citizen helping to solve the many problems with which ordinary citizens must cope. Up to the present time you have been plain ordinary Mr. Smith, or Jones, or Brown, or Robinson, or Miss Smith, or Jones, or Brown, or Robinson, —to-morrow a change will have taken place and you will be addressed not as Mr. "This or That," or Miss "This or That," or possibly in a short time, for some of you, Mrs. "This" or Mrs. "That."

The granting of a University degree to a student is similar, in many ways, to putting an ordinary man into military uniform. The immediate result of dressing a man in uniform is to place him in a class by himself, and as a member of that class, certain service and certain conduct and a certain mode of life are expected.

As newly fledged "Doctors" certain responsibilities will devolve upon you which you have not hitherto been called upon to bear.

Do not let the new title or the new responsibilities overshadow the fact that you are just men and women, and go out into the world to stand shoulder to shoulder with every other man and every other woman, who is trying to add to the sum total of human happiness.

You have been trained for a purpose and we trust you will strive to fulfill that purpose, and in the effort so to do, we wish you—God Speed.

## Local Anesthesia

John E. McMulkin, Toronto.

#### DEFINITION.

Local Anesthesia is a term applied to the results obtained when only a circumscribed part of the body is temporarily rendered without sensation by some agent or drug. When rightly practiced and successfuly used, it is the most practical anesthesia for exodontia, minor surgical operations about the mouth, as well as most of the delicate operations connected with the pulps of teeth. The success of local anesthesia is based on a working knowledge of the oral anatomy, scruputous asepsis, fresh drugs and a correct technic in their use, allowing sufficient time to elapse before operating.

## METHODS OF PRODUCING ANESTHESIA.

The condition known as local anesthesia may be produced by nerve compression, application of intense cold or by the application or injection of drugs. In the practice of Dentistry, it is the last method with which we are mostly interested, as more ideal conditions of local anesthesia are produced, namely by the injection of drugs, known as paralyzants, which paralyze the sensory nerve endings.

## ETHYL CHLORIDE SPRAY.

Local anesthesia produced by the application of intense cold is rendered possible by the use of the Ethyl Chloride spray. This drug applied locally by means of a spray, acts as a refrigerant local anesthetic, the tissues soon becoming white and superficially frozen, by the abstraction of heat. The drug is obtained for this purpose in glass or metallic tubes provided with a lever-spring top. When the lever is depressed, the drug is expelled in a spray by its rapid expansion from the heat of the hand. This form of obtaining local anesthesia is indicated in the extraction of very loose teeth; lancing of an abscess, or minor surgical operations requiring but a single incision, except in young or nervous patients, or where the adjacent teeth are suffering from pulpitis. In using, the surface of the gums around the necks of the teeth to be extracted should be dry and the adjacent teeth protected by means of cotton rolls. The spray is directed upon the gum from a distance of eight to twelve inches, and discontinued when the gums appear white, which indicates time for operating. There is very little danger attending the use of this drug as a local anesthetic, except, if continued for too long after the gums have become white, sloughing of the gum tissue may occur. The objections to its being used to any great extent are that the effects do not go deep enough, and it cannot be applied on both the lingual and buccal surfaces.

#### USE OF PARALYZANTS.

As was stated before, much greater use is made of drugs known as paralyzants, which paralyze the sensory nerve endings, in the production of local anesthesia; e.g. cocaine, eucaine, apothesine, etc. This class of drug may be applied topically (surface anesthesia): by means of the electric current (cata phorisis): or hypodermically. If applied hypodermically, we may produce regional anesthesia, better spoken of as "Conductive" or "Block" anesthesia, or we may produce terminal anesthesia by (a) injection through the mucous membrane into the various submucous tissues, e.g. gums, gingivae (b) injection into the alecolar process by means of high pressure syringe. We also make use of this high pressure syringe in forcing anesthetic through the tooth structure, i.e. dentine, in order to anesthetize the pulp.

## CHOICE OF METHOD.

The choice of method must be made according to the case in hand. Each method has its indications and contra-indications. The patient's choice must also be considered. In general it is wise to use the easiest method, but the dentist should be equipped so as to be able to use any method.

The contra-indications for a local anesthetic are in general—

- 1. Patients suffering from —(a) arterio-sclerosis (b) diabetes (c) anemia (d) marked physical debility (e) epilepsy.
  - 2. In very nervous patients and children.
  - 3. In pregnant women.
  - 4. Pathological tissue.
  - 5. In extensive extractions.

The advantages of Local over a General Anesthetic are—

- 1. In patients of low resistance a general anesthetic tends to decrease the resistance. (Except N2 O).
  - 2. It gives the operator a longer time for operation.
  - 3. Operator has patient's co-operation.
  - 4. Overcomes patient's objection to a general anesthetic.
  - 5. Assistants are less necessary.
  - 6. Less likelihood to nausea.
  - 7. Lower death rate.
  - 8. Less preliminary preparation of patient necessary.
  - 9. Expensive and complicated apparatus unnecessary.
  - 10. Patients usually exhibit less fear of local anesthetic.
  - 11. Field of operation is relatively bloodless.
  - 12. Not so important to have a witness during operation.
  - 13. Can be administered in the home much easier.

## CHOICE OF A DRUG.

In the choice of an ideal local anesthetic there are several essential factors to be taken into consideration. The drug to be used must not exercise a toxic effect upon the vital functions of the body: must not exercise an irritating effect or produce subsequent inflammation or sloughing of tissues: it should admit of sterilization by boiling: should be readily soluble in water and readily absorbed by the tissues: should exercise its effect quickly and the available anesthesia should not be for too short duration.

#### COCAINE.

For many years cocaine in the form of the hydrochlorate or murate has been almost universally used by the dental profession as the principal local anesthetic. It is very soluble in water: readily absorbed by the tissues: and produces anesthesia very rapidly. On the other hand it has its disadvantages in that it cannot be sterilized by boiling; available anesthesia is short: and it is more or less irritating to the tissues. Its toxicity was not clearly understood at the beginning, and thus occured overdosing, particularly with stale solutions. It has been fully demonstrated that some individuals could stand heavy doses without showing ill effects, while death would result in other cases where only a small dose had been used. In any case never use more than \( \frac{1}{4} \) gr. of cocaine at one time. This amount is contained in about 30 min (1.84 c.c.) of a 1% solution.

The following are recommended as good prescriptions:—

Acidi Carbolici M 1X.
Chlorali Hydrati gr. XLU.
Atropinae Sulphatis gr. jss.
Cocainae Hydrochlorati gr. XXuj.
Aquae Dist. ad Z uj. M.

Sig.—Inject 30 min.

Note—Saturated solution of boracic acid may be substituted for water.

Cocainae Hydrochlorati gr. XIU.
Trinetrin (1% sol.) M. LXXX.
Listerine dr. ij.
Aquae Dist. ad Z iij.

Sig.—Inject 30 min.

Proprietary solutions of unknown composition should not be used.

The Physiologic action of cocaine—

1. General—In large doses it acts as a protoplasmic poison on the tissues. The symptoms of acute cocaine poisoning are rather variable. The usual manifestations are nervous excitement, followed by delirium, and later by drowsiness and stupor; nausea, vomiting, a rapid pulse, hurried and difficult respiration, dilalation of the pupils, cold sweat, blanched expression, blue lips, convulsive seizures, and finally death through asphyxia.

2. Circulatory System-Moderate doses stimulate the circulation. Larger doses act as a protoplasmic poison on the walls of the blood vessels and heart, so that depression or even paralysis of heart follows. It is a powerful vaso-constrictor and produces ischemia followed by congestion. Pulse is at first rapid but later becomes slow and weak.

3. Respiratory System—Small doses increase fulness and rate of respiration. Large doses cause respiration to become slower and more shallow even to the point of dyspnoea. Finally, paralysis of respiratory centre takes place.

4. Nervous System—Depresses the sensory nerve filaments, causing analgesia or anesthesia. Toxic doses cause patient to suffer extreme nervousness, helplessness, fear of approaching danger, neurotic delusions, convulsions, amorous hallucinations, etc.

Treatment of Cocaine poisoning—

N. B.—The action of the other local anesthetics e.g. procaine, anocaine, etc., on the various systems is practically the same but less severe, hence the following applies to poisoning from any local anesthetic of cocaine origin—

1. Place patient in a recumbent or horizontal position and give one of the following stimulants—

(a) ½ to 1 dram of aromatic spirits of ammonia.

(b) 1 ounce of brandy in water.

(c) 1-60 grain of strychnine, hypodermically.

(d) strong coffee.

(e) inhalations of camphor, ammonia, smelling salts, amyl nitrite.

2. In case of suppressed breathing, give 1-120 to 1-60 grain of atropine sulphate, hypodermically, or resort to artificial respiration -about 20 per minute—the inspiratory movement being the longer of the two.

In case of excitement, give 10 gr. doses of Pot. Bromide. NOVOCAINE.

It is mainly because of the variable or uncertain cases of toxicity of cocaine that the profession has been hunting for a substitute. That substitute seems to have been found in novocaine. This is a synthetic product of complex composition which was introduced in 1905. It is made in tablet and liquid form, the former being the more suitable for the dental office, as a fresh solution should be made for each case. This has a good psychic effect upon the patient, but the main reason is to secure a sterile solution of proper temperature. Stale solutions darken in color with age, especially if advenalin be present, and stale tablets become brown in color, but Dr.

Smith finds that they do not lose their efficiency. In anesthesia producing power, it is equal to cocaine, but it is only one seventh as toxic, "Hence" do you conclude that it is liable to leave less aftersoreness because it is less toxic? There is less aftersoreness than from cocaine even in the most delicate tissues. It is readily soluble in water: can be sterilized by boiling, but much boiling will destroy the adrenalin content: is readily absorbed by the tissues: does not affect the action of adrenalin: it is a nonhabit producing drug, and, as claimed by the manufacturers, is derived from an entirely different source than cocaine, to which it is in no way related. The general effects upon the system, after it has been absorbed, are scarcely perceptible. The ordinary tablet contains—

Novocaine 1-3 gr. Adrenalin 1-1300 gr. Sod. Chloride 1-12 gr.

#### ADRENALIN.

The adrenalin constituent of the tablet is otherwise known as suprarenin, the hydrochloride of the alkaloid of the suprarenal glands of sheep. It is now made synthetically and marketed in a 1 in 1000 solution of normal saline. The general effects of this drug are a powerful cardiac stimulant: raises the blood pressure: and is a powerful vasoconstrictor, causing constriction of the muscular coats of the small blood vessels, thus producing anemia in the part.

It is for this last effect that this drug is used in conjunction with novocaine, as it intensifies the action of the anæsthetic. It lessens the constitutional effect so that less of the anæsthetic drug may be used (prevents absorption). It renders the field of operation more or less bloodless: soft or inflamed tissues are more easily anæsthetized: the available anæsthesia is prolonged in proportion to the amount of adrenalin injected.

It is, however, objectionable because when the operation is completed free hemorrhage does not take place, resulting in more soreness. The maximum dose is 10 minims of a 1 in 1000 solution. Where the patient is aged or suffering from arterivsclesosis, use less of the adrenalin. An overdose may result in palpitation of heart: acceleration of the pulse: dizziness: perspiration: slight nausea: nervousness: sometimes difficult breathing: collapse. Treatment simiar to cocaine poisoning.

## PREPARATION OF SOLUTION.

In preparing the anæsthetic solution, the tablet containing novocaine and adrenalin, is introduced into a dissolving cup by placing the open mouth of the tablet bottle against the inside of the mouth of the cup. To this is added an isotonic solution Q. S. to make a 2% solution of the novocaine. Normal saline is used as a solution for the anaesthetic, but it is not possible to have a perfect

isotonic saline solution because of the variation in the salivity of the blood of different individuals at different periods of life. The average salinity is 0.6%. To make an isotonic solution, dissolve 1 Ringer B. tablet in about 10 c.c. of sterile water.

Ringer's tablet contains:—

Sod. Chloride 4-5 gr. Pot. Chloride 1-30 gr.

Cal. Chloride 1-15 gr.

## SURFACE ANAESTHESIA

We are now prepared to discuss that method of producing local anæsthesia by applying the drug (novocaine) topically or otherwise known as surface anæsthesia. It is not practiced to any great extent in dentistry, as its usefulness is limited. It is simple in its administration and dispenses with the use of the hypodermic needle, which is feared by many patients. It is of advantage on mucous membranes, as they absorb the solution. The effect is not deep. However, applied to the gum it is usually sufficient to allay pain in fitting bands and crowns, or the finishing of fillings at the gingival margin. A pellet of cotton saturated with a solution (20%) of novocaine and packed on the floor of the nasal cavity over the incisor teeth, will many times anæsthetize the incisors of the respective side sufficient for operations upon the dentine and even for pulp extirpation. This latter use requires considerable time and is superceded by quicker and surer methods, such as infiltration and regional.

#### CATAPHORESIS.

Use is sometimes made by some practitioners of what is called Cataphoresis, in the production of local anæsthetic. This is a term applied to the process of carrying medicinal agents in solution into the various tissues and organs of the body by the use of the electric current. This phenomenon has been made use of in the anæsthetization of a pulp for the purpose of extirpation or to alleviate pain caused by sensitive dentine. The tooth is insulated by the rubber dam, care being taken that no moisture escapes from the gum. A small pledget of cotton saturated with the anæsthetic is placed in the cavity, the positive pole, or anode, applied to the solution, and the negative pole, or cathode, moistened with water, applied to some other part of the body to complete the circuit. A steady and continuous current is desired, of known amount, which along with the density of the dentine, controls the length of time to complete anæsthetization.

### Instrumentation.

In the following methods of anæsthetization which will be discussed in detail, use is made of the hypodermic needle. It is necessary to have a good syringe which works easily and does not leak. (The Imperial No. 3, an all metal syringe, is very serviceable). Sharp, fine needles, both curved and straight—gauge 25 to 27. The Schim-

mel needle is seperate from the hub and is made in varying lengths. This needle is of advantage because when a breakage occurs, it usually breaks at the hub. Platinum needles have the advantage of being easily sterilized in the flame, but they are expensive and easily broken.

## CARE OF INSTRUMENTS.

When the syringe and needle are not in use, keep them suspended in a special jar containing a solution of 70% alcohol in glycerine. This solution is objectionable in that it does not remain homogeneous: the glycerine sinks. Dr. Smith of Chicago uses a solution of—

Phenol solution 20 c.c.

Menthol "20 c.c.
Sod. Bic. "540 c.c.
Glycerine 100 c.c.
Aqua Dist. ad 1000 c.c.

Another highly recommended solution is 15 to 25% solution of lysol. In using this the syringe and needle must be thoroughly washed, as it is alkiline and very little of it will precipitate novocaine. No matter what solution is used, syringe and needle must be carefully washed before using.

## PREPARATION OF FIELD OF OPERATION.

The field of operation must be prepared before injection of anæsthetic: maintaining absolute asepsis. There are several solutions in use for this purpose, which if accompanied by a certain amount of mechanical cleansing, will serve to sterilize the field at least slightly. There is also a certain amount of pain in inserting the needle, and this is, to a certain extent, counteracted by a certain amount of local anæsthesis produced by these solutions.

- (a) 312% Tc. Iodine. Some claim that this causes sloughing in some patients. It is widely used and recommended.
- (b) Iodine 10 parts.

Menthol 10 "Benzol 80"

(c) Cocaine .10 grs.

Menthol 10 grs.

Camphophinique ½ oz.

- (d) Saturated solution of cocaine in either camphophenique or alcohol.
- (e) Saturated solution of alypin in colorless iodine.
- (f) Touch spot where needle is to be inserted with phenol.

Before inserting the needle, be sure that no saliva has run on to the surface.

## INFILTRATION.

Infiltration anæsthesia depends upon the injection of the anæsthetic into the tissue, where it infiltrates into the surrounding tissues

and paralyzes the terminal nerve endings. In extraction or disensitizing dentine we depend upon the solution being absorbed through the bone and anæsthetizing the pulp. The success of these injections depends on making the injection well above the apex of the roots into the tissues and inserting the point of the needle under the Periostrum. The method of injecting which I find most satisfactory is that method which is advised by Dr. R. B. Waite.

## METHOD OF INJECTION.

Select as healthy a piece of gum around the tooth as can be found. Avoid injecting into an abscessed cavity. If syringe is of glass and of light weight, hold like a pencil or pen for making the insertion. If syringe is all metal and heavy, it is better to have the piston always under control, holding the thumb over the handle and two fingers on the barrel. Dr. Waite advises a glass syringe, pen grasp, for insertion of needle in regional anæsthesia, so as to feel your way into the nerve. Place the point of the needle against the membrane in an inclined position and, with a quick firm movement, make a shallow insertion. Deposit some of the solution and, as tissues become anæsthetized, insert the needle deeper. If a wheal or blister forms, insert the needle deeper as the solution is only entering the soft tissues. As long as resistance is offered, success is insured. Dr. Waite advises making the insertion in the mucous fold or reflection of the mucous membrane, as it is practically void of sensation. The Periostrum is then picked up by the needle and it is passed along between to bone and Periostrum, to a point well above the root apex, where injection is made.

Another method is to make the first insertion at the gingival margin and scmewhat to the side of the tooth, the gum being somewhat thick at this point. After a certain amount has been injected, there is a blanching of the tissue. Make a second injection at margin of blanched area and work the needle well toward the apex of the root. Massage aids in distribution. Make the last injection, about opposite the root apex. Very often satisfactory results are obtained by injecting between the bone and tooth directly into the peridental tissue. For single rooted teeth, inject once on buccal and once on lingual. For multirooted teeth inject twice on buccal and once on lingual. To test for anæsthesia, take your cotton pliers, press hard against the gums, or test the cavity in the tooth with an excavator. If injection is made into dense gum tissue overlying gingival third of root and injection proceeded with slowly to permit "physiological absorption" in contrast to mechanical force the density of the tissue will direct the solution through alvcolus.

Positive—"That it doesn't hurt does it?"

Ask the patient if it hurts, not if he feels it. If no pain, anæsthesia is complete.

## DANGERS AND PRECAUTIONS.

The best time to use a local anæsthetic is after a full meal, and in the morning when patient is fresh. Do not administer when patient is tired and hungry. If trouble is expected, administer ½ oz. of brandy or a dram of Aromatic Spirits of Ammonia before injecting solution. Then are possible dangers in the administration of a local anæsthetic which all operators should be prepared to cope with—

- 1. Needle may break. It is always wise to use a longer needle than needed so as there will always be a portion outside the tissue, which can be easily grasped (Cosmos. Oct. 21. P. 1062.)
- 2. Toxic effect. Paradoxically, there is more danger from weak solutions than from highly concentrated solutions.
  - 3. After-soreness may be expected.
  - 4. Tissue lesions due to lack of asepsis.
  - 5. Cardiac depression.
  - 6. Prolonged anemia due to use of too much adrenalin.
  - 7. Neurotic delusions.
  - 8. Psychic disturbances.
  - 9. Novocain dermatitis (See Cosmos Sept. 1921, Page 878.)
  - 10. Injecting into muscle causing tresmus.
  - 11. Injecting into vein or artery.
- 12. If injection is made too fast, there is more after-soreness. Make injection s owly and gradually.

## INTRA-ALVEOLAR METHOD.

In many cases the cortical layer of process is very dense, and the results of a submucous injection are not sufficiently far-reaching. In many instances of this kind use is made of Intra-Alveolar anæsthesia, which has for its object the blocking of the nerve of a tooth before it enters the pulp, by injecting the drug into the alveous There are two in different injections in this method, namely, perun mental and subperiosteal. Use is made of an obtunding needle such as is used in forcing solutions into sensitive dentine, or a heavy gauge hypodermic needle, with an all-metal syringe.

The pericemental injection was the most widely used of all the methods of local anæsthesia up to the time of the introduction of novocaine, for the reason that it required a minimum amount of the drugs used. However with the advent of novocaine, the method has been used less frequently, owing to the liability of infection.

The sub-periostial injection is of the greatest use in operating upon vital dentine and extirpation of pulps. The needle is inserted beneath the periostrum, and even into the alveolar process itself by the use of drills, as near as possible to the apical foramen of the tooth to be operated upon. Considerable force is used in both injections

of this method in counter-distinction of all other methods of local anæsthesia entailing the use of the hypodermic syringe.

#### CONDUCTIVE ANESTHESIA.

Regional or Conductive Anesthesia or sometimes called Nerve Blocking is strictly a nerve-blocking process whereby a region of the desired extent is anesthetized. The method is not new, having been practiced more or less since the latter eighties, but has received a great impetus, due to the production of an agent like novocain which is comparatively safe for general practice. Regional anesthesia is by no means limited to the field of dentistry, but its use is as broad as the field of surgery on mankind, as well as that on the lower animals. The surgeon has but to know his anatomy to be able to render a region as void of sensation as though the part had been amputated from the body. For instance, the arm is now operated on without pain, even to amputation, by surrounding the axillary nerve with a puddle of a two per-cent solution of novocain with suprarenin, reached with a needle in the top of the shoulder posterior to the clavical and internal and anterior to the scapula. Aside from the completeness of the anesthesia obtained, regional anesthesia has to recommend it the fact that the injection is made far from the field of operation, which is oftentimes undergoing pathological changes often due to bacterial invasion. About the face we have several distinct nerve backing operations for regional anesthesia, each depending upon a working knowledge of the anatomy of the area along with especial care to asepsis, etc.

#### ADVANTAGES.

The advantages of Regional Anesthesia over Infiltration Anesthesia may be outlined as follows:—

- 1. The injections are less painful, as they are made in the loose cellular tissue and fewer injections are necessary.
- 2. The available anesthesia is protractul, thus giving sufficient time for an operation which requires considerable time. The length of induction period and elimination period is in proportion to the size of the nerve.
  - 3. The area of field anesthetized is larger.
- 4. There is not the same danger of causing strangulation of the pulp. No doubt the pulp suffers injury or even death where the anesthetic is injected under considerable pressure or where the anemia is very marked or prolonged, owing to the high advervatin content.
- 5. There is much less danger of spreading infection which may be around an abscessed tooth, especially if there is active inflammation and much pus present. Clinically, this is not an important objection.

- 6. There is less after-soreness due to—
  - (a) fewer injections.
  - (b) less tension since injections are made under pressure.

#### DISADVANTAGES.

The disadvantages are fewer in number and are greatly offset by the satisfactory results which are obtained by this method.

- 1. It requires a very accurate knowledge of the anatomy of the part,—
  - (a) Nerve supply.
  - (b) Location of nerve.
  - (c) Easiest way to reach the nerves and location of different formani.
  - (d) The relative position these structures occupy to other structures in the oral region.
- 2. Certain areas, such as the bicuspid region are hard to anesthetize, except by difficult injections.
- 3. The technic seems more difficult and demands much greater skill. For this reason, results are more or less indifferent as one may easily miss the nerve.

For nerve-blocking it is necessary to observe the many precautions which must be observed in the much simpler injections of infiltration. As for the type of syringe to be used, it is a matter of personal opinion. The needles used are of greater length, according to the distance the nerve is from the surface. It is necessary to wait a longer time after the injection is made for complete anesthesia in nerve-blocking. The larger the nerve trunk, the longer it takes before anesthesia ensues and more protracted is the available anesthesia. The nearer the nerve the injection is made, the sooner the anesthesia is produced. The greater the amount of agent used or the higher its concentration, the longer and more profound is the anesthesia. Note, however, that the time of available anesthesia depends upon the adrenalin content.

## INJECTIONS.

Gossevion Ganglion injection is seldom used by a dentist, but is employed for major surgical operations about the face and will be passed over by simply mentioning it.

## MANDIBULAR, OR LINGUAL AND INF. DENTAL.

The Lingual Nerve follows the Inferior Dental Nerve for a short distance, then gradually courses anterior to the Inferior Dental Foramen. It passes about 5 M.M. from the Internal Oblique Line of the Ramus, turns forward in the Mucous Membrane on the Lingual side of the Lower Teeth, anastomosing with the opposite Lingual Nerve at the median line. It also supplies the Anterior two-thirds of the tongue with sensation.

The Inferior Dental Nerve passes down and outward into the

Inferior Dental Canal, terminating at the median line. It supplies the teeth, almolar process, periostium and mucous membrane on the buccal surface, except the buccal membrane of the molars, which is controlled by the Long Buccal Nerve. At the median line it anastomoses with the nerve on the opposite side. Below the apex of the second bicuspid, the nerve divides into (a) Mental (b) Incicive, nerves.

To locate the Internal Oblique Line-

The Post Molar Triangle, on the anterior surface of the Ramus, is formed by the External Oblique line, the Internal Oblique line and the base. This triangle is concave and can be easily felt. The Internal Oblique line is very pronounced in some individuals, but hard to locate in others.

Place your finger along the buccal mucous membrane, with the apex of the finger buccal to the lower Second Molar roots. Now slide the tip of your finger distally along the mucous membrane until you can feel the External Oblique Line. Then rotate your finger over the Post-Molar Triangle and the apex of finger nail will be facing lingually to the Internal Oblique Line, your finger resting on the Occlusal surface of the Lower Molar teeth.

In some cases it is difficult to differentiate between the muscle and the Internal Oblique Line. When in doubt, instruct the patient to open and close the mouth, keeping your finger over the triangle. By this method you will be able to detect whether it is bone or muscle. With finger still in position, you are ready to make the first insertion.

First Movement—for landmark:

The syringe is held from the opposite side of the mouth, resting upon the first and second bicuspids. The point of the needle placed at the centre of the tip of the finger-nail, bevel of the point toward the bone. This point should be about 10 to 12 M.M. above the occlusal plane of the teeth. Insert the needle until you strike the Internal Oblique Line. Keep the syringe resting upon the teeth and the needle inserted, and horizontal with the occlusal plane of the teeth.

Second Movement—For Lingual Nerve.—

If you are injecting for an extraction, bring the syringe to the opposite side, just outside of the buccal cusps of the lower molars, on a line with the occlusal surface. Insert needle back a distance of 5 M.M. The side of the needle will be against the Internal Oblique line and the point will be near the Lingual Nerve. If the needle is injected too far it will hit the Internal Pterygoid muscle. Inject 1 c.c. This nerve supplies the mucous membrane on the Lingual of one-half the lower teeth with sensation, as far as the median line, and the anterior two-thirds of the tongue. If you are injecti

for the removal of pulp or sensitive dentine, do not inject any anesthetic. This movement is only indicated when you want to anesthetize the Lingual mucous membrane.

Third Movement—For Inf. Dental Nerve.

Providing you make the second movement for the Lingual nerve, bring the syringe back past the median line or farther, according to the divergence of the Ramus, the syringe resting upon the teeth. Now feel your way back slowly and carefully, by sense of touch. There should be no resistance to the needle. In the majority of cases you will feel the needle pass over a prominence and strike against the Periostrum of the bone within the Mandibular fossa. If the needle meets resistance, it may be in the Interni Lateral Ligament, which is attached to the Lingula. In such cases withdraw the needle part way and try again a little higher up. Slowly inject  $2^{1}$ <sub>2</sub> C.C. of anesthetic for removal of pulps and sensitive dentine. For extraction, slowly inject 2 C.C. If you insert your needle too low or too far back, you will deposit the anesthetic into the ligament or muscle, causing lameness when opening or closing the jaw. From the puncture point to the Inf. Dental nerve is about 20 M.M.

The Long Buccal Injection—For long Buccal nerve. This nerve is given off just outside the Foramen Ovale, from the Mandibular division, of the Fifth nerve. It enters the cheek buccal to the Upper Third Molar, sending branches as far forward as the Lower First Molar and in some cases, First Cuspid. Stand in front of the patient and insert the needle in the loose mucous fold at the mesiobuccal root of the Lower Second Molar. Instruct the patient to close his mouth, retract the cheek, hold the syringe horizontal with the lower jaw and insert the needle to a depth of 10 M.M., keeping close to the bone. As the needle advances deposit a small amount of the anesthetic until 1 C.C. has been deposited. Withdraw the needle and massage the cheek. This anesthetizes the mucous membrane buccal to the Lower Third, Second and First molars, and some times the First and Second bicuspids.

The Mental Injection.

Location of Mental Foramen—below the apex of the Second Bicuspid, halfway between the lower border of the mandible and the buccal gum margin.

With your finger locate the Mental Foramen from the outside by pressing on the face, below the area of the Second Bicuspid. The patient will experience slight pain because the nerve is pressed against the bone as it emerges from the Mental foramen. Now with your finger still over the foramen, stand behind the patient and reflex the lip. Hold your syringe vertical and insert the needle in the buccal mucous fold at the apex of the Lower Second Bicuspid, with the needle parallel to the long axis of the tooth. Insert about 10 M.M.

until the point enters the foramen. Slowly deposit about 1 C.C. to 2 C.C. of anesthetic. Remove the needle and massage. This forces the solution into the foramen, along the Inferior Dental Canal, which anesthetizes the lower bicusp ids, and in some cases the anterior teeth as far as the median line. In some cases the foramen is located a little mesial or distal of the second bicuspid.

The Incisive Injection—Location of the Incisive Fossa: below the lower central and lateral teeth, on both sides of the median line, are slight depressions containing seven or eight small openings called the Incisive Foramen, which transmit terminal branches from the Incisive nerve.

Stand behind the patient, locate the Incisive Fossa by palpating the outside of the face. Keep this position and reflex the lip. The needle is inserted in the mucous fold on either side of the median line. The syringe is held in a vertical position. Insert the needle about 10 M.M. and deposit about 2 C.C. of anesthetic. This injection is for the lower anteriors.

The Infra-Orbital Injection—Location of Infra-Orbita! Foramen: faces downward and is located 10 M.M. below the Infra-Orbital ridge, directly below the pupil of the eye and above the second bicuspid. Palpate for the foramen, keep finger in position, and reflex the upper lip. The syringe is held down along one side of the chin. The needle is inserted in the mucous fold, at the apex of the Upper Second bicuspid, parallel with the long axis of the tooth. Insert the needle straight up, about 20 M.M., and the point will enter against the bone forming the upper part of the Infra-Orbital Foramen. Inject slowly from 1½ C.C. to 2 C.C. of anesthetic. With the finger which has been locating the foramen, you can feel the anesthetic as it is being injected. Remove the needle and massage. This forces the anesthetic into the canal, anesthetizes the Anterior Superior Dental Nerve, supplying the Upper anteriors, the Labial mucous membrane, External Plate and Periostrum. If a blood vessel is punctured, it will cause a black eye, or an ecchymosis, which will clear up in a few days.

The Anterior Palatine Injection—Location of the Foramen: located on the median line, 15 M.M. lingual to the Upper Centrals, and transmits two Naso-Palatine nerves. The two Superior Maxillary Bones join at the median line, forming only one foramen.

Hold the syringe against the Lower Lateral, on the right or left side of the Mandible. Press the bevel of the needle against the mucous membrane at the side of the large papilla and force the anesthetic into the tissue. Insert the needle. This keeps the anesthetic ahead of the needle. Then insert the needle into the foramen about 5 M.M., and deposit about ½ C.C. This anesthetizes the Mucous Membrane, Internal Palate palatal to the six anterior teeth.

The Posterior Palatine Injection—Location of the Foramen located directly above the palatal gum margin of the Upper Third Molar, opening forward a few milimeters anterior to the junction of the hard and soft palates, and transmits the Anterior Palatine Nerves. Ho'd the syringe on the opposite side from which you are going to inject. With syringe held at the corner of the mouth, and needle point 10 M.M. above the palatal gum margin of the upper third molar, insert the needle through the mucous membrane to the bone. Now bring the syringe over laterally, or to the opposite side, and insert up and back a distance of 10 M.M. The needle will enter the Posterior Palatine foramen. Deposit slowly 15 C.C. of anesthetic. If you deposit a large quantity of anesthetic, you anesthetize the soft palate, producing gagging. This anesthetizes the Anterior Palatine nerve, supplying the Mucous Membrane, Periostrum, Internal Plate palatal to the upper molars and bicuspids, and terminates or anastomosing with the Naso-Palatine, palatal to the upper cuspid teeth.

The Tuberosity Injection—Location of the Foramen: located 20 M.M. above the distal gum margin of the upper third molar in the posterior surface of the Superior Maxillary bone. At times there are several small foramina instead of one. This foramen transmits the Posterior Superior Dental nerve.

Insert the needle in the mucous fold, near the apex of the distobuccal root of the upper second molar, or first molar in the child. Insert the needle up and back a distance of 10 M.M. You will first pierce the Buccinator muscle, and then drop into space. Now bring the syringe over laterally to the angle of the mouth and insert upward and in 10 M.M. more, keeping the point of the needle close to the Sup. Maxillary bone. When the needle has been inserted 20 M.M. in all, stop, and the point will be in the region of the Posterior Dental Foramen. Deposit 2 C.C. of anesthetic. Use a straight 30 M. M. needle, with a long curved hub. This will anesthetize the pulp of the upper Third and Second molars, the Disto-Buccal and Lingual root of the Upper First molar, Buccal Mucous Membrane, Periostrum, External Plate and Alveolus.

The Spheno-Maxillary Injection.

The Superior Maxillary nerve or the Second Division, has its beginning in the Gasserion Ganglion, passes through the Foramen Rotundum in the Sphenoid bone, into a cup-shaped depression or fassa, between the Sphenoid and Sup. Maxillary bones, called the Spheno-Maxillary fossa. The Foramen Rotundum is about two inches directly back of the Infra-Orbital foramen. The Superior Maxillary nerve then passes outward and forward in a fissure, between the Sphenoid bone, and the posterior part of the Superior Maxillary bone, where it enters the Infra-Orbital canal. Within the

Spheno-Maxillary fassa, the nerve gives off Meckel's Ganglion and the Posterior Dental nerve. It is about 25 M.M. or one inch from the Foramen Rotundum to the entrance of the Infra-Orbital canal.

In blocking off the Second Division, insert the needle in the mucous fold, buccal to the Upper Third molar: direct it upward, a little in toward the median line, and forward. When you begin to inject, the needle point will be about two inches straight back of the Infra-Orbital foramen. The syringe is held an equal distance between the occlusal surface of the upper and lower teeth. Use a 40 M.M. needle with a right angle curved hub, and insert to a depth of 30 M.M. The needle hugs c ose to the posterior surface of the Superior Maxillary Bone. The entire Second Division is anesthetized, including the pulps of the teeth: alveolus: buccal and palatal membrane as far as the median line: Antrum of Highmore: one half of the upper lip: lower eyelid and Mickel's Ganglion: which supplies the Palatal mucous membrane, soft palate and tonsil. Deposit about 2 C.C. to 3 C.C. of anesthetic. Anesthesia will be complete in from 5 to 20 minutes.

## LOWER INJECTIONS.

- 1. To extract the right or left lower first, second or third molars:
  - 1. Lingual

Mandibular.

- 2. Inferior Dental
- 3. Long Buccal.
- 2. To remove the pulp, prepare a sensitive cavity in any teeth to median line:
  - 1. Inferior Dental.
  - 3. To extract all teeth to median line:
    - 1. Lingual.
    - 2. Inferior Dental.
    - 3. Long Buccal.
  - 4. To extract first and second lower bicuspids.
    - 1. Mental.
    - 2. Lingual mucous infiltration at first molar.
  - 5. To remove pulp in lower first or second bicuspids.
    - 1. Mental.
    - 2. Inferior Dental.
- 6. To extract the six Anteriors and the right first and second bicuspid:
  - 1. Two Incisal Injections.
  - 2. Mental on right side.
  - 3. Lingual infiltration, distal to right second bicuspid.
  - 4. Lingual infiltration, distal to left cuspid.
  - 5. Buccal infiltration, distal to left cuspid.

## UPPER INJECTIONS.

- 1. To extract upper second or third molars:
  - 1. Tuberosity.
  - 2. Posterior Palatine.
- 2. To extract upper first molar or all three:
  - 1. Tuberosity.
  - 2. Posterior Palatine.
  - 3. Buccal infiltration above first mo'ar.
- 3. To prepare cavity in any tooth to the median line:
  - 1. Tuberosity.
  - 2. Buccal infiltration above first molar.
- 4. To prepare cavity, remove pulp in first or second bicuspids:
  - 1. Buccal infiltration.
  - 2. Or Intra-Osseus.
- 5. To extract first or second bicuspids:
  - 1. Buccal infiltration.
  - 2. Posterior Palatine.
  - 1. Buccal infiltration.
  - 2. Anterior Pa atine.
- 3. Infiltrate left of median line both buccally and lingually to block off anastomoses.
  - 6. To extract right central, lateral or cuspid:

## SEQUELAE.

Sequelae from Conductive Anesthesia.

- 1. Sometimes anesthesia fails—
  - 1. Failures in mandibular injection due to making injection too low.
  - 2. Mental nerve sometimes deeply seated.
  - 3. Patient exhibits idiosyncracy for drug.
  - 4. Deterioration of anesthesia or too high adrenalin content.
- 2. Pain during or after operation—
  - 1. Too hot or too cold solution.
  - 2. Injecting too quickly.
  - 3. Use of hypo or hypertonic solution.
  - 4. Injecting into inflamed area.
  - 5. Septic instruments or solution.
- 3. Prolonged anesthesia may be traced to—
  - 1. Injury to nerve.
  - 2. Failure to wipe off alcohol in which syringe is kept.
  - 3. Injecting into muscle.
- 4. Oedemo said to be caused by—
  - 1. Non-sterile or non-isotonic solution.
  - 2. Trauma from injection.
  - 3. Injection into muscle.

5. Psychological phenomenon—The peculiar sensation in injected area gets on nerves of some people—patients often cry, etc.

Cardiac and respiratory disturbances may be psychic.

6. Extreme nervousness accompanied by perspiration—said to be due to adrenalin constituent. To reduce adrenalin content, use a 1½% solution instead of a 2% solution.

Remember all anastamoses of nerves in doing Conductive Anes-

thesia.

# Factors which Govern a Favorable or Unfavorable Prognosis in Dental Operations

H'. Steele, Toronto.

Purpose of dental operations:-

To restore normal tooth tissue lost through disease or accident.

To restore normal functions including orthodontia.

Factors governing a favorable prognosis:-

Aseptic operating.

Accurate knowledge of the anatomy and histology of the teeth and surrounding tissues.

Balanced diet and with no over-ingestion of carbohy-drates.

Careful and wise selection of the restoration or filling material—method of insertion—type of appliance—manner of attachment, etc.

Good systemic health.

Attention to oral health by patient.

In fillings—observation of the rules of cavity preparation, extension for prevention—restoration of contacts—no overhang at gingival—removal of all the decay in a cavity, etc.

In prosthetic work—care of the supporting tissue—mucosa, tooth—correct appliance and manner of attach-

ment—health of the pulp.

Factors governing an unfavorable prognosis:-

Septic operating.

Carelessness of operator in operating, especially in respect to the gingival.

Poor general health of patient. Lack of care on patient's part.

Failure to observe the rules of cavity preparation—extension for prevention—resistance form—retention form—failure to remove decay, etc.

Poorly adapted crowns and bridges.

Poor root canal work.

Unbalanced diet.

Placing metal fillings too close to vital pulp.

Failure to correct morbid conditions in the fissues surrounding the teeth.

Lack of consideration of properties of filling materials. Wrong application of force in retention of prosthetic restorations.

Failure to restore normal occlusion and function.

Accurate study of individual case essential.

Careful, skillful, and aseptic operating.

Ability of nature to co-operate with operator in restoring tissues to normal health and function.

## Relation of Human Glands to Growth, Development and Longevity

W. J. Armstrong.

Glands are secreting organs.

Lymphatic glands.

Assist in getting rid of an overabundance of water in the tissues. Overcome blood deficiency by transferring water from the tissues to the blood. Manufacture lymphocytes Spleen.

Formation of white blood corpuscles. Also forms colored blood corpuscles. Breaks up red corpuscles. Aids in nitrogenous metabolism and formation of uric acid.

Thymus.

Infantile blood forming organ. Controls development of generative organs.

Thyroids.

Removal brings species of idiocy, defective growth, diminished coagulation of blood, headache and giddiness. Governs building up of body cells. Regulates destruction of protein and its elimination.

Parathyroids.

Neutralise poisonus substances formed elsewhere. Control distribution of calcium.

Suprarenals.

Increases tone of voluntary muscles. Has sedative action on nerves. Acts on vaso-motor nerves. Manufactures adrenalin. Improves efficiency of heart and muscles.

Pituitary Body.

Forms secretion controlling growth. Acts on arterial blood pressure. Causes contraction of involuntary muscle. Causes dilation of blood vessels in kidney. Stimulates milk secretion, sexual development. Essential for life. Affects body temperature and growth. Influences carbohydrate metabolism.

Salivary Glands.

Secrete mucin and saliva. Form an enzyme—ptyalin. Beginning of digestion. Amount of water lost from the blood is equal to the quantity of saliva formed. Sublingual, submaxillary and parotid glands. Moistens mucous membrane of mouth, assists in solution of substances, acts as lubricant on bolus of food.

Gastric Glands.

Cardiac, Fundus and Pyloric Glands. Forms Pepsin, trypsin and gastric juice. Prevents putrefaction in stomach. Inverts sucrose into glucose and fructose. Contains lipase. Curdles milk, to proteolytic.

Pancreas.

Contains enzymes—trypsin, lipase, amylase and milk-curdling substance. Breaks down certain proteins. Converts starch into maltose. Splits fats into glycerol and fatty acids. Emulsifies fats.

Succus Enteneus.

Converts disaccharides into monosaccharides. Contains enzymes—invertase, maltase and lactase. Aids action of pancreatic juice. Acts on proteoses and peptones.

Liver.

Formation of bile. General metabolism of the body. Formation of urea and uric acid. Formation of glycogen.

Stomach.

Digestion. Gastric juice. Acid control of pyloris. Movement of muscular walls. Peristalsis.

Kidneys.

Separates urinary constituents from the blood. Keeps blood of a constant composition. Effects of arterial pressure on secretion. Cardiac stimulation. Diuresis.

## SELECTIONS

## The Use of Translucent Cements

Lastly, and most important feature of all, we must consider the alleged chemico-physiological effects of silicate fillings on pulp tissue. The term neurotropism was suggested by Ehrlich to indicate the poisonous action of any material or nerve substance. He was the first to suggest that only those chemical substances are neurotropic which form a definite

chemical compound with the nerve fibres.

Ever since the introduction of these materials this point has been the bone of contention; but, even in this, history is again repeating itself. Nowadays, for example, we have grown to consider the oxyphosphate cements as fairly inert and harmless to pulp tissue, yet two great men, Professor W. D. Miller and Professor Black, waged wordy warfare as to the toxic nature of the oxyphosphates, Professor Miller affirming that these cements caused death of pulps in teeth. The theory that was first advanced regarding the deleterious effects of silicate fillings on pulp tissue was that trouble was caused by minute amounts of arsenic present. This was due most probably to the fact that some of the constituents of the powder were directly derived from mineral sources. Modern cements are prepared by synthetic processes, and are not open to this objection.

Another theory has been that hyperamia and death of the pulp have been caused by cements after setting, containing enough free acid to exert irritant effects. certainly may be obviated by proper manipulation in mixing, so that a neutral, stable and insoluble compound is formed; for a mixture which is too thin inevitably contains traces of uncombined acid. But the latest method of accounting for this objectionable feature somewhat harks back to Ehrlich's neurotropism phyothesis which maintains that some of the silicate cements are positively poisonous to animal tissue, owing to the solution of free aluminum salts, which have a natural affinity for the amino acids found in highly nitrogenous animal fibre, such as nerve tissue.

This question of toxicity is very interesting, and anyone who may wish to follow it up would find much helpful information in a work entitled, "The Silicates in Chemistry and Commerce," by Drs. W. and D. Asch, of Berlin. The conclusion of opinion, it would appear, however, among operators

of experience, is that with certain precautions the modern translucent cement is comparatively innocuous. To obviate the danger of excess of acid it is advisable to make the mix very carefully. As a general rule, it may be stated that as much powder as possible, consistent with thorough incorporation, should be mixed with the liquid. In deep cavities, where the pulp is approached, linings should be inserted as a protective against any possible irritant action. With regard to this question of the possibility of injury to pulp, we must be wary, for example, when using regional anasthesia for sensitive dentine, that we do not insert our filling, whatever the type of filling, too near a temporarily desensitized pulp. One must also remember that pulps may die under silicate fillings, which should have been extirpated before the insertion of the fillings, if one had been aware of the pathological conditions of the pulp. It is quite probable that in some cases the silicates have been blamed and made the scapegoat, when they were not at fault.

No dentist can absolutely guarantee the extent to which a pulp, which has existed for some time under a carious cavity, may or may not have been damaged prior to treatment of the cavity. In many cases, particularly where the cavity has been deep, there may easily have been a sufficient degree of irritation, prior to the case presenting itself for treatment, to bring about a certain amount of reaction in the pulp after the filling has been completed.—British Dental Journal.

# Value of Diagnosis as a Factor in Dental Health

We sometimes think there is a general breaking down of our dental health system, because we have so far failed to eradicate one or two of the diseases which most universally affects mankind, such as dental caries and periodontoclasia. Teeth have always been subject to decay and we have had periodontal diseases of all the soft tissues which embrace the teeth, and it seems in recent times the influence of these particular tissues and organs are not the local and peculiar affection we formerly believed them to be, but they are capable of producing most serious systemic diseases. In other words, the dentist is not only called upon to cure toothache, but also a large and increasing number of diseases that are closely allied with the general system. Many years ago some one banteringly asked Doctor W. H. Atkinson to tell him what was the cause of toothache. He gave what he thought was a sufficient reply when he said, "show me the tooth," as though he

could take a good look at the tooth and tell what was the trouble with it. Our present plans are quite as simple and sufficient for too many dentists, but we are gradually learning that to diagnose toothache is not the simple and sufficient answer to all present-day tooth ills. The radiograph has accomplished wonders to make clear the unseen causes of dental injuries. But with all these new evidences there are many more injuries and pathologic environments that we have only known when they have been revealed by serious systemic diseases which we do not even know they have even remotely influenced in any way bad health.

Do we realize what it means that dental caries is not a local disease any more, but that in its initial infection it is serious because it may and frequently does lead to the most serious systemic infections we know; such as neuralgia, arthritis and other vital organic infections?

Almost every infection, however insignificant at the first, eventually becomes not only consequential but may become a serious affection. We used to think that straightening children's malposed teeth was a question only of physics and mechanics, but the orthodontist is fast becoming a scientist with an expanding interest in the knowledge and skill of the medical expert internest. The same may be cited of oral prophylaxis or the dental hygienist, who a few years ago thought his job was to clean away from the teeth calcular deposits and polish away discolorations that were only offensive to sight, but these were not seriously considered questions of ill-health, and liable to infect the entire body in a serious manner. We are now finding out that our crown and bridge work must be changed because it is a source of systemic ill-health. Even plate prosthesis is being studied to determine what can and should be done to give better health for such mechanical appliances, because unless properly constructed, however artistically made, they may be serious factors in the health propaganda. In fact the dental profession is undergoing a serious examination to find out just what can be done that will make for better health, in the way of correcting by artistic endeavors proper technical appliances. It is in reality a more serious problem that confronts what has been for a long time only a technical incident in our American system of dental practice. It is now imperative that the dentist shall make efficient inspections of all teeth, that he may assume his full obligation as an important guardian of the public's health.—Editorial in The Dental Register.



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Nova Scotia-Frank Woodbury, L.D.S., D.D.S., Halifax.

SASKATCHEWAN-W. D. Cowan, L.D.S., Regina.

PRINCE EDWARD ISLAND—J. S. Bagnall, D.D.S., L.D.S., Charlottetown.

MANITOBA-M. H. Garvin, D.D.S., L.D.S., Winnipeg.

BRITISH COLUMBIA-H. T. Minogue, D.D.S., L.D.S., Vancouver.

Vol. XXXXIV

TORONTO, JUNE, 1922

No. 6

# The Passing of Dr. J. G. Adams

The death of Dr. J. G. Adams brings to a close a most interesting and eventful career. It is hoped that someone who has been close to Doctor Adams for a great number of years will give the time to writing a complete history of his life. He was a man of strong convictions, great tenacity of purpose, unusual foresight and simple Christian faith. He was never a convincing or fluent public speaker, but gained his point by the goodness of his soul. He lived a full generation before his time. While dentists of his day were discussing how to grind gum sections for artificial dentures, he was calling as in a wilderness for the prevention of the need of artificial dentures by preventing diseases of the teeth among children. What is now looked upon as modern dental practice was advocated by Dr. Adams over thirty years ago. In a book published by him in the eighties, it is clearly pointed out that many diseased and backward children in the public schools were restored to health by correcting bad mouth conditions. At many medical and dental societies, Dr. Adams showed

patients suffering from general and local diseases due to dental neglect. On one of these occasions, about twenty-five years ago, Dr. Adams showed a group of children from one of the boys' homes. Among these were two boys who had what is known to-day as trench mouth. Dr. Primrose had carefully examined one of the lads and after some discussion passed on to the next boy, who, wishing to avoid a similar examination and dissertation, made this significant remark: "Me and him is chums." This cogent remark was grasped by Dr. Adams to send home the fact that all children in orphanages and schools are more or less chums and suffer from like diseases, spread and propagated from uncared-for mouths.

Dr. Adams lived long enough to see his labors bear fruit and to see over thirty thousand dollars a year for the care of school children's teeth provided by the very city in which even the dental equipment was sold from the Christ Dental Mission for taxes. A city council which would not exempt from taxes a building devoted to the care of the teeth of the poor twenty-five years ago, not only exempts from taxes rooms in every general hospital and school in the city but also pays for their manning and maintenance today. Few dental practitioners will be privileged to leave behind them such a heritage of foresight and goodness.

# Arthurizing Teeth

The editor not having been in the practise of dentistry long enough to have seen patients so treated, and only having heard its condemnation all his dental life, it is hard for him to judge of its value. In recent issues of the Dental Science Journal of Australia, there have been many articles in praise of this discarded method of practice. Its chief object is to prevent dental caries of the proximal surfaces of teeth by grinding these surfaces away. In other words remove the proximal contacts of the teeth. To the American brand of dental teaching, this seems to strike at the very foundation of American practice.

## **Editorial Notes**

Only one in four of the people of Canada get dental treatment.

A dental clinic has been established in Romeo School, Stratford, Ontario.

President Whittaker of Edmonton, stands out as a wise counsellor in the profession.

The dentists of Hamilton gave the recent convention splendid assistance and direction.

Dr. Countryman, Saskatoon, addressed the Eclectic Club of that city on preventive dentistry.

The dental clinics established in the public schools of Hamilton are under the charge of Drs. J. L. Stewart and J. E. Dores.

A notable step has been taken by the dentists of Vancouver in forming a dental section of the department of health within the Board of Trade.

The joint meeting of the Canadian and Ontario dental societies just held in Toronto was largely attended and was a most enthusiastic gathering.

The dental members of the Academy of Medicine, Toronto, have formed a section in dentistry with Guy G. Hume chairman and Fred Mallory secretary.

The dental research foundation fund is gradually increasing. \$12,000 have been already collected for the fund, as well as a good deal more to carry on much needed immediate work.

It was a happy thought of Dr. Willmott to have any dentists who had been more than fifty years in practise as guests of the recent convention. Among those as guests were Dr. Neelands, of Lindsay, and Dr. N. Pearson, Aurora.

Dr. W. A. Evans says that the habits of a people, even in so important a thing as diet can be changed, if gone about in the proper way. A noted English authority has said that a nation will not change its habits of diet to save its teeth.

General Mewburn spoke wisely at one of the luncheons of the C. D. A. meeting when he said he would like to have Dr. P. C. Moore, President of the Ontario Dental Association, write his obituary. Dr. Moore introduced the General by a splendid tribute to a splendid man. The dentists of Toronto have formed an Academy of Dentistry with the following officers: President, R. G. Mc-Lean; Vice-President, J. A. Bothwell; Secretary, A. M. Hord; Treasurer, W. E. Willmott; Councillors, Drs. H. H. Armstrong, H. G. Beau, C. E. Brooks and Arthur Day.

Dr. Charles Goebel, of Paris, demonstrated a new apparatus in London for reducing the temperature of a tooth, thereby destroying its sensitiveness. The demonstration is very glowingly written up, but there are many limitations to the use of such an appliance. In most cases of hypersensitive dentine, the pulp is hypersensitive and will not tolerate changes of temperature, except with great pain and danger of after-trouble.

Officers of the Ontario Dental Association are: Drs. F. P. Moore, of Hamilton, hon. pres.; R. J. Sproat, of Barrie, pres.; F. J. Conboy, Toronto, vice-pres.; C. A. Kennedy, Toronto, re-elected archivist; J. A. Bothwell, Toronto, re-elected sec.-treas. Board of governors—Drs. E. L. Gausby, W. L. Chalmers, C. E. Brooks, M. W. Rutherford, W. B. Amy and Col. W. G. Thompson. Advisory and oral hygiene committees were re-elected.

The President of the Canadian Dental Association says that there is only one dentist for each three thousand of the population. Ontario has a dentist for each 2,171; British Columbia, one for each 2,255; Nova Scotia, one for each 2,732; Alberta, 3,233; Manitoba, 3,503; New Brunswick, 3,528; Saskatchewan, 4,614; Quebec, 5,208. But the serious feature indicated by the statistics is that a large part of the population receives no dental service at all.

# OFFICERS OF THE CANADIAN DENTAL ASSOCIATION.

President—S. W. Bradley, Ottawa.
1st Vice—E. C. Jones, New Westminster, B.C.
2nd Vice—Geo. K. Thompson, Halifax.
Secretary-Treasurer—E. C. Grant, Toronto.
The next meeting will be held in Vancouver, 1924.

## A Dentist for the H. B. C.

Dr. W. P. Miller of Edmonton is going to the far north on a mission of mercy and will attend to toothache sufferers from Fort McMurray to the Ellice river post on the far eastern Arctic. Up to the present time dentistry in the far north has been practised on Spartan lines, the one relief from suffering being the use of forceps, wire cutters or blacksmith's tongs, to extract the offending molars and the men who man the posts have united in pleading for the services of a genuine dentist to put an end to their sufferings.

Accordingly the Hudson's Bay Company has arranged free transportation for Dr. Miller, who will go north via the company's Athabasca and Mackenzie river services, returning by the way of the Behring straits and the Alaska coast on the company's steamer "Lady Kindersley." Should the amount of work on the Arctic coast prevent his making connections with the steamer, when outward bound, the H. B. C. will send the adventurous dentist over land by dog team via the Yukon route, but as Dr. Miller has previously resided in the Y. T. it is likely that this section of the journey will merely savor of "old times,"

The company's employees at Fort McMurray will be first treated, after which the doctor will move down stream attending to his patients at Chipewyan, Fort Smith and other points, and on arrival at the mouth of the Mackenzie will possibly catch the "Lady Kindersley" on her voyage to the eastern Arctic, or failing that will go down on one of the smaller vessels which the H. B. C. use on the northern sea.

# R.C.D.S. Graduates Receive Degrees

One hundred and forty-two graduates of the Royal College of Dental Surgeons received their degrees at a special convocation of the University of Toronto, held in Convocation Hall. Immediately following the conferring of degrees the commencement exercises of the Dental College took place. Six of the successful graduates were young ladies.

This year's graduating class was the largest that has ever passed from the college. There was an attendance at the convocation made up of the students and their relatives and friends.

President Sir Robert Falconer formally conferred the degree of Doctor of Dental Surgery on the graduates, whose names were presented by Dr. Wallace Seccombe, of the college. Each graduate in turn came to the platform and as he or she knelt, placing their hands between those of the president, the hood was placed on their shoulders, officially signifying the degree to which they had attained.

A brief address was then delivered by the president, who warmly congratulated them on their success. He drew an analogy between the season of the year in which they had received their degrees and the Spring of their lives on which

they were just entering.

Dean Webster, of the Royal College of Dental Surgeons, then presented the certificates, assisted by Dr. M. A. Morrison of Peterboro.

The graduating address of practical, helpful advice was given by Dr. A. W. Thornton, Dean of the Faculty of Dentistry, McGill University, and one of the leading dental sur-

geons on the American continent.

In opening his address, Dr. Thornton paid tribute to the faculty of the college, who, he declared, were mainly responsible for the success achieved. "This dental school has grown large and important, due to the men in the faculty. Yet we should remember the men who have passed on and who laid the foundations for the work. Remember, too, that the students in the college are fortunate to have as their heads men like Dr. Webster, Dr. Seccombe and Dr. Willmott."

Rev. R. B. Cochrane, D.D., led in prayer. During the intermission between the convocation and the commencement exercises, Mr. F. A. Moure, university organist, played several numbers, including Wagner's March (Tamhauser).

Large bouquets of roses were presented to the lady

graduates.

# McGill Dentistry Graduates

The Stevenson gold medal for the highest aggregate in the final year in the Faculty of Dentistry of McGill University has been awarded to Gerald Franklin of Montreal, who graduated with honors in aggregate of all final examinations. Others include:

Doctors of Dental Surgery—Pass list, in order of merit: J. Vincent Broderick, Cornwall; Albert Douglas Crowe. Moose Jaw, and Joseph Neilson Blacklock, Elora, Ontario.

The following have been awarded honors in the second year:

Anatomy: J. K. Higgins.

Histology and embryology: 1, W. Bushell; 2, J. K. Higgins; 3, I. K. Lowry; 4, S. Hershon; 5, D. Barkoff; 6, J. B. Deavitt, W. H. S. Grant, F. S. Radway, equal; 7, C. R. E. Cassidy, H. Toker, equal.

Metallurgy: 1, R. M. Bradley; 2, J. B. Deavitt; 3, A. D.

Richardson.

Prosthetic dentistry: 1, J. B. Deavitt, I. K. Lowry, equal; 2, I. Druckman; 3, J. K. Higgins.

Operative dentistry: 1, W. T. Swetnam; 2, D. McRae, J.

K. Higgins, I. K. Lowry, J. B. Deavitt, equal.

Crown and bridge work: 1, W. Bushell, I. Druckman,

equal; 2, J. B. Deavitt.

Those passing the examinations in second year are: John Kerr Higgins, St. John, N.B.; Winston Bushell, Westmount; William T. Swetnam, Moncton; J. B. Deavitt, Isidore Druckman, Montreal; Maurice Lee Donigan, Magog; Samuel Hershon, Montreal; F. S. Radway, London; Creighton Richard E. Cassidy, Montreal; Campbell Morris, Ste. Therese; Maxwell Harris Toker, Montreal; Albert Levy, Montreal; William Kindeston, Montreal: Harold Elston Purcell, Huntingdon: Melville Johnson Moore, London; Samuel Richstone, Outremont; John Wilfrid Dinsmore, St. Stephen, N.B.; Johnston William Abraham, Montreal; Abraham Benjamin, Montreal; Henry T. Brown, Westmount; Gerald B. Fels, Westmount; Alex. William Hyndman, Sherbrooke; Leonard Ernest Kent, Ste. Anne de Bellevue; Michael Lawrence Leahy, Montreal; Martin Reid Pickel, Cowansville; John Bernard Woodman. Coaticook.

# BOOK REVIEWS The 1922 Dentists Register

The 1922 edition of the *Dentists Register*—the last to be issued under the regime of the 1878 Act—have been published for the General Medical Council by Messrs. Constable and Co., Ltd. The total number of names registered is 5,831, as compared with 5,610 last year and 5,275 in 1914. The number added by registration in 1921 was: 269 British, five Colonial and three foreign; sixty were removed on evidence of death; eight were restored; and three were removed for failing to reply to an official inquiry; and one was "erased" under Section 13 of the Act. The British licentiates and graduates in dental surgery number 4,768 or 81.76 per cent. of the entire

list, while those registered solely on ground of having been in practice in 1878 number 968 or 16.6 per cent. The diploma of L.D.S., R.C.S.Eng., is held by 2,652 dentists, while 664 possess the Edinburgh diploma, 590 that of the Royal Faculty of Physicians and Surgeons of Glasgow, and 477 that of the R.C.S. Ireland; there are 124 diplomats of Manchester University and 116 of Liverpool University. The Colonial dentists have now increased to sixty, of whom thirty-three have the L.D.S. of the Royal College of Dental Surgeons, Toronto.

## An Invaluable Piece of Work

We have just received the second volume published by the Dental Index Bureau. We hope shortly to give it a more extended notice, as we did in the case of the first volume some time ago. In the meantime, we desire to congratulate Dr. Arthur Black, the Editor, and his energetic coadjutors, on having got so far in the fulfilment of their self-imposed task. Their invaluable work, involving as it must do, infinite patience and an enormous expenditure of time, has all the appearance of being executed with great thoroughness. object aimed at is to make an exhaustive record of all original articles and pronouncements which have appeared in dental periodicals published in the English language during past years, as well as a list of books (in English) published on dental subjects. Such a work must necessarily prove a gigantic undertaking, and can only be accomplished by degrees, but it is now well under way, and two more volumes, it is hoped, will appear in the course of this year. Every student must appreciate the importance of such a publication. Hitherto many inquirers have been completely baulked by the greatfrequently the insuperable-difficulty of discovering for themselves all that has previously been written on the subjects in which they are interested. We could even cite cases of men who have been puzzled to know where to look for their own work. Now things are rapidly being made easier for us. Thanks to the men who, recognizing a great need, were not daunted by its magnitude, and the obstacles strewn in their way, we are beginning to reap the first-fruits of their labours. They surely deserve the grateful thanks and support of the whole profession. It should be mentioned that all information. and copies of the work, can be obtained from the Secretary-Treasurer of the Bureau, 381 Linwood Avenue, Buffalo, New York.

# Dr. J. G. Adams

Dr. J. G. Adams, dentist and philanthropist, of Toronto, is dead. The deceased carried on the first free dental hospital in the world entirely at his own expense in Toronto for over a quarter of a century. In this institution all the children of the poor and of the Boys' Home and Girls' Home, Protestant Orphans' Home, Victoria Hospital for Sick Children, and other homes, were cared for without any expense whatever by the kind-hearted dentist, whose only complaint was that some of the poor children, through their own indifference or the carelessness of parents or others, were neglected.

The large building which was equipped and utilized for the purpose is situated at Elm and Teraulay streets, and was called Christ's Mission Dental Hospital, and would still be in use for this purpose were it not for the lack of co-operation and the advancing years and decreasing income of the donor.

The examination of school children's teeth and their treatment by dentists and nurses, now in vogue in Toronto and other cities and towns of Canada, was the outcome of his pioneer efforts.

The first investigations made anywhere and recorded were made by him and his son, E. Herbert Adams, M.D., in the Victoria Street School, Toronto, in 1893-4, and showed 98 per cent. of the children neglected and grievously so.

He interested the dental profession in his efforts, and also secured the necessary legislation from the Ontario Assembly for public schools, which has since proved so beneficent and of such general benefit that it has been copied by many other countries of the world. The system of examination and treatment also entered into the management of the mouth-health of our citizen soldiers in the recent war. Many foreign countries, through their representatives, had appreciated his aims and efforts and adopted the program he laid out.

In his Christ's Mission Dental Institute he educated many missionaries for foreign fields in mouth-health and in relieving suffering from dental causes.

Dr. J. G. Adams peacefully passed away at 12 noon on Sunday in the presence of a number of his children, at the age of 83 years, at the home of his daughter, Mrs. (Dr.) George S. Martin, Burlington.

Mrs. Walter Smith, his youngest daughter, and Dr. G. A. Adams, dentist of West Toronto, and Mrs. Adams were also present, as was also Dr. E. Herbert Adams, M.D., of Toronto, who was in consultation with the local physician, Dr. A. H. Speers of Burlington. Dr. J. Frank Adams of Rosedale, Toronto, arrived later, and is the oldest son. The eldest daughter, Amy, died a few years ago, and was the wife of Rev. David A. Moore, B.D., of Simcoe, Ontario. Another son, Dr. W. F. Adams, is a medical missionary in China, where he has been located for over 20 years.

# Dr. William R. Wilkes

Dr. William R. Wilkes, of St. Catharines, Ont., died last month owing to heart trouble, which developed last January. His condition had become serious recently and he returned to his former home in St. John, N. B., to be with relatives, barely arriving when death overtook him.

Dr. Wilkes, who was a native of St. John, had been engaged in the practice of dentistry in Stephen, N. B., until he joined the Dental Corps of the C.E.F. in St. John in 1916, with the rank of Captain. After three years service overseas he returned to St. John, but continued in the Dental Corps for a further period of two years and then was a member of the Dental Clinic Staff of the D.S.C.R. until last October, when he removed to St. Catharines to resume private practice.

He is survived by his wife and one daughter.

DENTAL PRACTICE and Equipment for sale—Equipment separate if desired. 198 Spadina Avenue, Toronto. (College 322).

FOR SALE—Ritter Dental Lathe—A. C. 110-60; in excellent condition. Apply J. D. Brown, 647 King St., East, Hamilton, Ont.

FOR SALE—\$5,000 practice. Good town and best district in Alberta.

No opposition. Bargain. Address A. T. I. N., c/o Temple Pattison Co., Edmonton, Alberta.

# Dominion Dental Journal

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No. 7

### ORIGINAL COMMUNICATIONS

# Oral Hygiene

(Pelivered Before Class of Public Health Nurses, V.O.N., St. John, N.B.)

James M. Magee, D.D.S., L.D.S.

In the discussion of the subject of Oral Hygiene, we must begin at the beginning.

It is not enough to confine ourselves to the question of keeping the oral cavity in good condition, we must know as much as possible of all the factors which have a bearing on the conditions as they exist.

The mouth is the portal through which over 90 per cent. of the diseases which afflict mankind enter the human system. The nasal passages cover somewhere about another 5 per cent. so you see how important it is that every precaution shall be taken to eliminate as many of the 90 per cent. and of the 5 per cent. infections as possible.

At first thought it would seem that the beginning was at birth, but if you will follow my reasoning you will agree that the beginning is really before the period of conception.

Given a child born to perfectly developed, perfectly healthy parents, nourished from birth as nature intended it should be, and after weaning, given a rational diet with plenty of the exercise all healthy well developed children will instinctively seek, and we need have no anxiety concerning that individual's ultimate physical condition.

The mouth is the surest index of health, and relatively as regards the percentage of afflictions which may enter the system, symptoms of just that many are readily found in it, caries being a symptom common to a very large number.

This quotation from Ruskin, adopted by the Public Health Department, that "Every child has the right to be well born" should be a Slogan never to be forgotten.

The tongue, as you know, is almost the first thing the physician examines when called to a case of illness; if not the very first thing. You do not have much difficulty in determining the difference in appearance in tongues of children suffering from, say, digestive disturbances of some days standing, and of scarlet fever.

If you familiarize yourselves with the various "Stomatitis" expressions, you will be in a position to prescribe a

remedy.

On general principles it may safely be said that all digestive irregularities are directly traceable to diet, perhaps in ingesting unnecessary quantities of otherwise perfectly balanced nutritional elements, perhaps to ill-balanced aliment. In the matter of typhoid, however, infection may result in cases where a lowered vital resistance is in no wise connected with the alimentary canal. Generally speaking, in addition to the immunity afforded by anti-typhoid inoculations, a perfectly healthy individual giving careful attention to diet, coupled of course with precautionary sanitary and other hygienic measures, where typhoid exists, will fortify himself in great measure against infection. I might add also the question of faith, for while I have no patience with the extreme claims of so called, "Christian Scientists," I am firm in my belief, that given its proper title, there is much to be commended in hypnotic suggestions, whether it be autohypnotic or the hopeful outlook imparted to depressed individuals by cheery confident advisors. If you are cheerfully confident you are well, the chances are you will escape infection. If, however, you are certain you are going to fall a victim, you will develop symptoms sufficiently like the real thing to make the transition quite easy.

To begin at the beginning: — all the influence we can bring to bear on people to fit themselves for their first duty to their Creator, namely, the propagation of the race, in accordance with laws spiritual, moral, civil, social, and physical, it is our bounden duty, and it should be our privilege to do.

In your rounds of duty therefore, you have a wonderful field for cultivation, and no easy task to perform. Primarily the prospective mother should excite your most particular interest, and receive your most personal consideration, even if she is not the individual for whom your professional services have first brought you to the home.

In the matter of diet we are all more or less abnormal, chiefly more; indulging in luxuries to such an extent that our children now have the idea that they are really neces-

saries. The farther away we get from *live* food the more poorly are we nourished. By this I mean dried vegetables, extremely cooked foods and foods from which bone building constituents have been extracted, as for example, wheat flour refined to the point of extreme whiteness.

Certain articles of diet have been proved by experience to have far less nutrient value than our reasonings gave us hope for. For example, during long voyages on sailing ships, scurvy very frequently developed, and we know that the preventive is either raw vegetables or raw fruit, or their com-

bined alternate ingestion.

Prior to the Shackleton Antartic Expedition, without preliminary laboratory experimentation, and reasoning that vegetables together with the ordinary mixed diet would provide digestive essentials, the organizers of that movement decided that that expedition was to be one entirely devoid of scurvy; so quantities of dried vegetables were added. As a matter of fact, the records show that scurvy was more prevalent on that expedition than ordinarily. On the return of the Expedition, laboratory tests revealed the fact that the dried vegetables had no value as a check on scurvy.

There is an active principle in all live food, whether it be animal or vegetable, which, though it cannot be tangibly measured, is nevertheless present and necessary. Overcooking destroys it in some instances, and drying destroys it in others. It was once thought that by adding moisture to the dried article its value would be restored, but this has now been disproved. In the case of cabbage, which in the green or fresh raw state is a very excellent adjunct to a mixed diet, it has been discovered that a very short period of drying destroys its value. This active principle has been appropri-

ately termed, "Vitamine."

In the case of dried grains, etc., the vitamines develop immediately the process of sprouting begins, even as short a period of soaking for 24 hours such articles as peas and beans developing it to an appreciable effect. Whether or not this knowledge has been the underlying scientific reason prompting the Chinese to use sprouting rice so freely, the fact remains that they provide vitamines while we have allowed ourselves to become sufferers from scurvy. This may be an example of a self-satisfied, self-righteous, self-styled superior race having to acknowledge that it didn't know as much as its despised inferior.

Now you may possibly know more about this matter than I, and perhaps the query may enter your minds, "what has

this to do with Oral Hygiene?" My answer to that is, that perfect assimilation has everything to do with Oral Hygiene.

I have said that the mouth is the surest index of health, Stamatitis in its many forms we know is an expression of digestive disturbance. Infantile Scorbutis is discoverable in the mouth, and I might go on citing numerous other diseases, symptoms of which are plainly manifest. Most of you are doubtless unaware of the fact that investigations have been carried on looking to the saliva as a positive diagnostic medium for determining disease. This is a very broad statement to make, but there is so much good reasoning to support the statement that it must not be disregarded.

Some years ago I was present at a convention, when, during the course of a certain session, the Editor of the "Dental Cosmos," Dr. E. C. Kirk, Philadelphia, received an unusual tribute. He had quoted Michaels, of Paris, as authority for the statement that by certain tests of saliva alone, he could almost absolutely determine the diagnosis of disease without seeing the patients, and that by a conjoint examination of the saliva (a secretion), of the urine (an excretion), and of the blood, he could determine positively any disease. To test the matter, Dr. Fanuiel Weiss, an eminent New York Specialist and Educator, having no faith in the statement, sent Dr. Kirk a specimen of saliva, and I was present when Dr. Weiss rose in convention and publicly announced how near Dr. Kirk had come to a correct diagnosis. Dr. Kirk's report was that the patient was suffering from Sarcoma and was very near death. Dr. Weiss stated that the disease was Epithelionia which had progressed beyond the operable stage. In justice to Dr. Kirk's statement he felt he must make that public acknowledgment. Dr. Michaels, I understand, is now dead, but he had furnished Dr. Kirk with many data covering the question. A few months ago I had a short conversation with Dr. Kirk regarding the matter, and he told me he intended in the near future resuming the investigations, which force of circumstances had compelled him to temporarily abandon.

Some recent research work by others demonstrates the probability of the saliva being the diagnostic medium through which certain gland groups may be discovered to be either normal or abnormal with the added knowledge that the missing essential can definitely be administered to neutralize the abnormality. For instance, it is known that under certain physical strains like excessive mental strain of adolescent school pupils, mental anxiety, as well as the well known stress

of child bearing, and a variety of other causes, there is an excessive amount of caries, especially noticeable in the interdental spaces which no tooth cleansing efforts carried out by the individual can prevent, because the spots cannot be reached. The exposed surfaces may be scrupulously cared for and vet the interproximal cavities develop rapidly.

Investigations carried out by Mr. F. W. Broderick, a Dental Surgeon Specialist at Bournemouth, England, during which he has experimented upon himself as upon others in institutions and elsewhere, would indicate that certain of the ductless glands are responsible for the condition. He has administered both by the mouth and hypodermically, certain gland derivatives and effected an entire change of metabolism in cases concerning which no doubt could exist. succeeded in effecting artificially, if I may so term it, the result oftentimes noticed and of which I shall speak later, nameiv, the arrest of caries which sometimes occurs spontaneously. Hypodermically results are three times as rapid as administration by the mouth. Since the cause of Pernicious Anaemia and Diabetes Mellitus are as yet unknown, it is not too much to hope for either or both of them being brought under control through research work connected with ductless glands.

There is so much to be told people and so little time in which to do it if we are to save the present growing generation much of the suffering that is all too evident in the world, that no opportunity should be lost in spreading information abroad.

This city seems to be a laggard so far as dental inspection of school children is concerned.

Doctor Hannington is doing all that any one in her position can do in her medical inspection, but some thoroughly qualified specialist in Dental Surgery should be employed as Oral Hygienist for the Public Schools of St. John.

One of the difficulties to be experienced if volunteer Dental examiners engage in any survey of the mouths of School Children, is that interference with the rights or wishes of parents who employ their own Dental Surgeons might be suspected, therefore it will have to be made plain that the Oral Hygienist is to have no part in the treatment he recommends. His position is that of an advisor solely. Only in that position will confidence be established to enable him to get the co-operation of both pupil, parents and teachers. You cannot fail to see, however, what incalculable amount of good a conscientious qualified and experienced examiner could accomplish.

We cannot differentiate in the matter of caries as a symptom of this or that disease, though the degree of prevalence, the rapidity of its ravages, and the location of the cavities all determine in some direction the probable cause.

There are two conditions, however, presenting a very similar appearance in that there is destruction of tooth tissue without the characteristic softening accompanying caries. The two conditions are Erosion and Abrasion, the former being caused by an extremely acid condition of the oral secretions, especially that from the submucous glands of the lips and cheeks. The latter is the result of over-vigorous use of the toothbrush, with as a rule, an accompaniment of a tooth paste. The first can be checked if the cause of the acidity be discovered. The second can be checked also if the victim gets rid of the notion that to clean his teeth he has to scrub them and has to use a tooth paste while scrubbing.

In connection with the "live" food statement—examination of thousands of ancient skulls reveals a very limited amount of caries, but we have no data to actually determine

how the living subjects dieted.

Of all the existing races there are two outstanding examples of almost complete immunity from caries: namely the Maori and the Eskimo. That climate and particular articles of diet have no bearing on it would seem to be conclusive. Both races, however, live on simple diet, which necessarily on account of climatic extremes, cannot be any way similar.

The statement has been made that in proportion as we are civilized so is caries prevalent in degree, and I am compelled to give that statement great weight. I feel, however, that as we learn more about its cause, if we can educate the rising generations effectively, we shall eventually, as civilized races, achieve as low a percentage of caries as either the Maori or the Eskimo. We can be highly civilized and yet live on simple rational food. It is not civilization which is responsible for our carious teeth, but deterioration, the result of false standards. We are living too fast, demanding luxuries and cultivating abnormal appetities, both physical and mental, that can only be satisfied at the expense of physical, moral and mental efficiency.

That caries may entirely cease has been frequently recorded. Every observant practitioner of dentistry can cite instances where carious cavities exist with the rayages of caries arrested. I have in mind now one certain case where caries was rampant, at the age of 17. The boy, whose life

up to this time had been one of comfort and luxury, had burned the candle at both ends, in that, in addition to his ordinary school work, he was a very beau of young women, and night after night instead of getting the amount of sleep every boy of that age was entitled to, he was out to parties, or driving, and of course dissipating in edibles. Morally he was above eproach, but his physique suffered. Economic conditions effected a change in his life. He removed from the city to develop a tract of timber growth in a warmer climate some three thousand miles South. His habits of life, of course, were revolutionized — going to bed figuratively with the chickens and rising at cock-crow, as well as living on simple satisfying diet. Strangely enough, he lost the desire for the kind of food he was accustomed to eat at home. After an absence of nearly three years I saw him once more. amination of his mouth revealed an entire arrest of carries; the cavities, though discolored, being clean, and the walls smooth as though polished. Former habits at home having once more been resumed, the conditions in his mouth changed also. Caries once more became active. There is but one conclusion to form. Healthful exercise (working in a hardwood timber tract is more than exercise, it is good hard work) and plain substantial food with all the fruit and green vegetables desired, restored an impoverished system. A return to former conditions resulted in deterioration.

With all our vaunted civilization it is a sad travesty to realize that all animals intimately associated with man deteriorate in degree with our luxurious living. Animals in their native environment are immune from caries. Those in captivity develop caries extensively. But that is not all; illustrations may be cited to show how various animals deteriorate, but one will suffice for the present. Let a wild buffalo, for example, discover an extensive luxurious clover patch. He will eat until he is satisfied and then lie down to ruminate. Let a dometic cow have access to such a field and she will gorge until she can hold no more and possibly kill herself as a result.

The illustration of the boy in whose mouth caries had stopped on changing his habits of life, would seem to warrant the deduction that a simple well-balanced diet with adequate exercise is all that is required to ensure a mouth free from caries. When the mouth is free from caries it rarely has anything wrong with it; therefore it should be your endeavor to discover the things likely to be responsible for the condition

present in the mouth, with the ultimate object of having them corrected.

The ancient skulls, before mentioned, were all normal as regards the dental arches. The Maori and the Eskimo, as well as many other races, have likewise normal arches. As "Civilization" advances, however, underdeveloped jaws, contracted vaults, and narrow arches with consequent crowding of the teeth as they erupt, are abundantly present. You have all seen them.

You cannot place your finger on one single factor and say that it is responsible for the condition, but you can place your finger on the chief factor. The mother is responsible, and yet she may not be to blame. If, knowing that she is likely to cause such conditions as we frequently are called upon to treat, by refusing to provide the child with what it requires, she is then both responsible and blameworthy. To furnish the foetus with bone material the mother requires diet containing a sufficiency for the repair of her own body as well as for it. The foetus will receive what it requires even if nature extracts it from the bones and teeth of the mother. If the necessary material is ingested in the food supply, and properly assimilated, the foetus will not be supplied at the expense of the mother. You have doubtless beard the old expression "For every child a tooth." Many mothers whose teeth deteriorated as a concomitant of child bearing were insufficiently supplied with the essentials in their food. but this should not now be allowed to happen. Making it your business to have the prospective mother reach as nearly as possible your ideal of the perfectly nourished woman. your first step of duty has been well done.

The most important period of the child's life is that immediately following its birth. Following the Slogan quoted from Ruskin that "every child has the right to be well born," every child should be given a fair chance in life, and its first opportunity is its first day. It should have nothing placed in its mouth until it has extracted the first milk from its mother's breast. Nature has provided in this first milk the essential agent for a prompt and efficient evacuation of the bowels. No meddling with the healthy child of the healthy mother should be tolerated. Nature's food is all it requires.

Up to the time of birth our care has been to have the mother provided with what her developing child requires. Now after its birth she must still continue to receive the same essentials for the child's sake as well as for her own. The child should be nourished at the breast. (Of course it happens

occasionally that a mother cannot nurse her child, or perhaps the mother dies, but we are assuming that our mother is normally healthy.) Nursing at the breast develops the tongue, jaws, nose and throat, and of course as the jaws develop nor-

mally the face develops.

Watch the little fellow feeding. We, who have grown up and forgotten the art of feeding which he does not have to learn, can scarcely realize the strength he has to put into his suction pump to get his meals. He is not long at work until little beads of perspiration break out on his nose, and soon his forehead and temples exhibit the same condition. From his first day you see he is literally working out the sentence pronounced on Adam—earning his "bread by the sweat of his brow." It is the beginning of that most important period of his life, the nursing period.

Up to the time of weaning, his mother has provided him from her own body with every essential. From this onward, his food will gradually change as the requirements of his

developing body demand.

### INFANTILE SCORBUTUS AND RICKETTS.

A most unhappy, distressing condition, and one having disastrous results, is infantile scorbutus. Unlike many systemic derangements, symptoms of which are first noticeable in the mouth, the bones of the legs give ample evidence of its presence. The cure for it is fresh fruit juice (a few drops at a time), preferably orange, and the juice of raw beef extracted under pressure, administered at first in very small quantities. Nothing else will compare beneficially with this treatment, and it would seem that no further argument is needed in support of the statement already made concerning the value of "live" food.

Statistics prove that the only breast fed children found to be suffering from this affliction have been those of undernourished women; half-starved blacks especially seeming to preponderate, and that a large proportion of infants fed artificially, and suffering from this disease have been found in households where there is no lack of means to procure every luxury, and every necessary; thus seemingly to indicate that wealth does not count for very much in the matter of health.

Patent foods have their value, but the exclusive use of patent foods alone, is, in the light of present knowledge, un-

wise.

We have referred to breast feeding as the only means of enabling the child to normally develop its jaws, nose and

With the object of providing a substitute that compels the infant to exert itself to secure its food when natural nursing is impossible, a nipple has been devised to meet some of the requirements, but no substitute can ever measure up to the natural article. Most people are content to feed the child with whatever will entail the least trouble, therefore most children are fed from bottles provided with nipples which require a minimum of effort to extract the milk. The evil results which follow an inadequate development of jaws, nose and throat, are not immediately evident, but when the time arrives for the eruption of the permanent teeth, in degree as the parts are underdeveloped, deformity and unhealthy conditions become manifest. Many people will point to children so fat that arms and legs suggest the likeness to sausages. and consider them beautiful specimens of childhood. I can recall an advertisement published by the producers of a certain patent food which depicted twins—one a very large fat child, such as I have just mentioned, whose expression was quite characterless, with sagging lower jaw and open mouth, through which it undoubtedly breath d. since the nostrils were undilated, and which the subject in the picture designed to advertise the merits of the particular food; the other not at all thin but infinitely less fat, with wide open eyes, dilated nostrils, closely shut mouth, and the very picture of an alert, wide awake infant, described in the explanations accompanying the picture as the breast fed child. To my mind it was about the best illustration I have ever seen of the relative beneficial value of breast feeding as compared with artificial food diet. No one who has had any experience would hesitate to say that the chances of recovery from the same disease, supposing both children contracted it at the same time, would be far greater in the case of the breast fed child than in the other.

### MOUTH BREATHING.

When the nares are undeveloped, a very little irritation will set up a congestion of the mucous membrane sufficient to make breathing through the nose difficult. Breathing then takes place through the mouth. You have only to breathe through your mouth for a few minutes to nouce a marked discomfort caused by evaporation of the moisture of the mucous membrance of the palate and throat.

Chronic mouth breathing is accompanied by adenoid growths which sometimes entirely block the air passages. These should be operated upon, for the mucous discharge is

usually so abundant and vicious that children so afflicted are seriously handicapped. In addition to the offensiveness, with generally unhappy results, this condition of the posterior nares affects the tonsils and hearing.

# PRESERVATION OF TONSILS — ADENOIDS REMOVED.

I differ very emphatically from those practitioners who advocate the enucleation of enlarged or diseased tonsils. The tonsil glands may be likened to sentinels standing on either side between the pillars of the fauces. Their chief business is that of gathering in the microbes which would pass their way otherwise unchallenged. The word scavenger seems to be out of place for two such royal servants of the body, but the class of work they do is comparable to that performed in civic municipal surroundings. Is it any wonder that through overwork and neglect they become sick?

Physicians and surgeons, in common with all others, are faddists in one way or another. In our desire to serve mankind, when we are at a loss to discover the cause of a baffling affliction, we herald with joy the announcement of some one that the cause has been discovered and a positive cure will result with the eradication of the cause. We fly off at a tangent. Take for example the appendix, People used to die of "Inflammation of the bowels," Doubtless most of those cases were appendix cases. The successes attendant upon prompt operative procedure have proved its value beyond doubt, but the operation has been overdone. Thousands of healthy appendices have been removed for which there was no justification, the diagnosis having been inaccurate. Argument for its removal when discovered to be unaffected has been: "It is valueless anyway, and is liable to give trouble later on, so now that we have it we will forever be free from a menace in this case," so out it was cut. If nature had no use whatever for it (and I am free to confess I do not know its actual value) it would not be there. It is, in humans, a rudimentary organ of what in some of the lower animals is a digesting organ, yet because we do not know what economic value it has for us, does not give us the right to say "Away with it." Now the pendulum is swinging in the opposite direction and advanced surgeons are performing relatively fewer appendectomys than formerly when the "fad" was at its height.

The value of the tonsil gland has been vastly underestimated, and I hail the day when a halt will be called in

what I consider a ruthless onslaught on this most precious possession. We long for oral health, but I believe some of us are not working altogether in the right direction.

Adenoids may be made to disappear without operation in some instances, merely at the expense of temporary discomfort. If the afflicted individual has determination enough to keep the mouth closed at all other times than when eating, and speaking, forcing himself to breathe through the nose, adenoids will disappear. There may be occasions when suffocation may seem to be threatened, but faithful persistence will bring its sure reward.

Children who breathe through the mouth, in addition to a great deal of caries will also exhibit a marked discoloration of the teeth, especially the anterior upper. It is really an exhibition of the same process which, starting to dissolve the lime salts out of the enamel, effects a partial disintegration. Sometimes it is of a greenish tint and has been frequently spoken of as Green Stain. Powdered pumice stone moistened with a few drops of peroxide of hydrogen and applied with a slender flattened stick rubbing as you would proceed while manicuring the nails, will completely remove the stain. Iodine as a substitute for peroxide will accomplish the same end though not so quickly.

Mouth breathers suffer more also from caries than do those who breathe normally. Your advice therefore regarding the cure of this habit is essential. "Keep your mouth shut, and breathe through your nose," cannot be repeated too often.

Much can be done by the Orthodontist in improving narrow arches, high vaults and contracted nares, but necessarily at great expense. The treatment is not yet within the reach of all classes, especially the poor, except in certain cities where benevolent legatees have made provision for it.

Contracted nares, with narrow arches, accompany those cases where teeth are crowded and irregular. The Orthodentist can sometimes work wonders in widening the arches with the almost invariable result that the nares are widened also.

### THUMB SUCKING.

"Thumb sucking" is an evil habit. The title embraces not merely the thumb, but the fingers also. A child which sucks its thumb will often disfigure the nose, as well as deforming the anterior part of the upper jaw, and the anterior teeth of both jaws, for usually the forefinger rests over the nose,

serving the purpose of a hook support for the arm. Deformities of the jaws effected in childhood continue through life, unless corrective measures, not within the reach of the great masses of people, are undertaken. Noses deformed in childhood remain deformed. Prevention of deformities from this cause is much easier of accomplishment than their correction once they are established.

Very little irregularity of the deciduous teeth (twenty in number) will be noticeable while the thumb sucking habit is becoming fixed, the deformity becoming more pronounced

with the eruption of the permanent teeth.

That natural feeding of the infant is far superior to any artificial feeding may be proved in innumerable ways. One effect may be observed by anyone sufficiently interested to make enquiries. There never was a singer of world wide repute who was not breast fed in earliest infancy. There may be many pleasing singers of locally circumscribed reputation, artifically fed in infancy, but the highest goal can never be attained by them. If perfection can never be attained by them there must be a reason. It cannot be accidental, when we stop to consider how many world renowned singers there have been.

The "comforts" which so many uninformed people place in their childrens' mouths are most pernicious in their effect, deforming the dental arches and setting up irritation in the throat. I would like to see legislative action taken to make it a criminal offence to give children these "comforts." Laws have been enacted to prevent the deforming of human limbs. When the resultant damages permanently effect the child's health it would seem that its rights should be safe-guarded by the State. The child has the right to be well born. It also has the right to a fair chance in life until it can assume responsibility for its own actions.

All these evils therefore, which can be provided against if the message to the mother is received correctly, may be obviated.

### KEEP INFANTS' MOUTHS CLEAN.

You have all, no doubt, received instruction regarding the daily cleansing of infant mouths. Dilute Boric Acid solution provides an excellent wash, to be applied on a soft cloth folded over the finger. You want to be careful, however, that the little patient does not grasp it with the tongue, extracting the moisture and swallowing it. Intestinal disturbances will surely follow. If you find the foeces have taken on a green-

ish tint and are more watery than usual, you will know the

probable cause.

Taking it for granted that your services will rarely be required for any length of time where Mother and Child are perfectly healthy, and where normal nursing is in effect, we will assume that a less promising picture is your daily experience. As the teeth crupt, they must be cleansed daily.

### PREVENTION OF CARIES.

Should the deciduous teeth begin to show signs of caries, one or two applications of a 5 per cent, solution of silver nitrate will check it. Apply it directly to the suspected locations which have been wiped clear of mucous and isolated while the application is being made, with either a roll of absorbent cotton or folded gauze or similar material. Carious spots treated with this solution will discolour in a few days, but, except for the disfiguring stain, it is a most excellent material for routing caries. Silver Nitrate solution will never stain clear, healthy enamel, therefore you need not fear staining anything but those crevices and surfaces where the enamel is either softened by caries or is imperfectly developed. Great care, however, must be exercised in its application in the case of children.

To most effectively treat children one must secure their confidence, and, having secured it, never to knowingly or willingly violate it. If you are to retain it, you must always anticipate possible accidents by providing a way out if you should be unfortunate enough through unexpected or unavoidable movement when using disagreeable remedies, to either hurt, or allow vile tasting material to come in contact with the little tongue. You know the tongue is our only means of communicating to the brain what is going on in the mouth. The little organ is constantly ready to enquire "what's up!" So it is well to inform the patient of what may happen. Just as you are finishing your application, make your announcement regarding taste, or hurt, or whatever the disagreeable thing is. In this connection it is a good plan if you can arrange a different kind of application following one that either hurts or is disagreeable. Awkward questions may frequently be avoided thus.

If you have a love for children you may control any child except the one which has to be held by force if it be too strong for you single handed to cope with. Some children may be wheedled, some may be bought, some may be induced to submit through appeal to their vanity, some through appeal to

their fortitude as compared with others, (which is, after all, a species of vanity in some, and is rivalry in others), but whatever the individual's weak spot is, after you have discovered it, jump on that weak spot (figuratively speaking) with both feet, and don't get off it until you have accomplished your purpose. If you like children and treat them this way, you will make a multitude of friends who will do anything in the world for you.

Caries which is molecular disintegration is a chemicovital ecteon. (In certain surfaces of teeth which do not become cleaned, food debris and exfoliated epithelial scales from the mucous membrane become attached to the teeth by what are termed mucoid plaques, under which the microbes rapidly develop. These micro-organisms excrete lactic acid which acts upon the mineral tissue of the enamel, dissolving it and leaving a relatively small amount of animal matter which is promptly seized upon and consumed, the process being so continuous, withal so slow, that it usually takes some years to effect an opening directly through the enamel of a normal well developed tooth. Once through the enamel, however, and the progress of caries is much more rapid, because dentine has relatively more animal and less mineral structure than enamel, and the tubuli of the dentine are favorable apertures for penetration. The whole process is, however, relatively slow because we cannot discern even from month to month any appreciable change to the eye.

Iodine is a very satisfactory inhibitor of caries. Unlike silver nitrate it does not stain, but on the contrary is a bleaching agent, but its inhibiting effect is only temporary. You need never hesitate using Iodine wherever there are cavities, for in addition to the inhibiting of caries, it will as I said, bleach and of course if it checks the progress of caries it will allay toothache, though sometimes the first contact of the alcoholic tineture, which is commonly used, will shock the

tooth a bit. However that rapidly passes away.

The reason why it bleaches is that hydriodic acid is developed in the chemical reaction which occurs when Iodine comes in contact with the putrefactive contents of the cavity or with the micro-organisms active in the process of caries which is the same thing. Silver nitrate treatment however, produces permanent suspension. It must not be assumed, however, that one treatment will render a tooth immune. It will kill the active agents of caries and sterilize the ground already attacked, but the entrenchments protected against frontal attack may be out-flanked and caries reasserted.

Broadly speaking, anything which will lessen caries is good treatment. Gum chewing, if practiced, for a few minutes only, after meals is beneficial. Excessive chewing is to be condemned. If we live on a rational diet, thoroughly masticating our food we will not require any gum chewing, but it is beneficial following the diet we are practically compelled to consume in present day civilization.

As I said before, under conditions of environment wherein vigorous physical exertion creates in the body the demand
for certain food constituents to supply the waste, we lose the
desire for articles of diet which a pampered appetite and cultivated taste, it had formerly been our habit to consider necessary. If you give encouragement in any case to the gum
chewing habit let your advice incline to paraffin wax — the
kind used in sealing preserved fruits. It forces out debris
of food which find lodgment in interdental spaces and in the
sulci of the teeth, sweetened starchy foods being especially
the most clinging and the most damaging.

As it is altogether certain that many teeth to which your attention will be drawn have cariously progressed to the point where pain is experienced, applications for toothache will very likely be called for. Carbolic Acid, though it will usually stop the pain in a tooth with a vital pulp, is not advised because of its affinity for water, enabling it to spread readily and cauterize delicate tissue. Creosote is less violently escharotic, but is very prompt and effective. Oil of cloves is very soothing, and is not escharotic, and though not quite so promptly effective as Creosote, is recommended to your service as the most generally satisfactory.

### COURSES OF THE MENU.

It seems to be the correct thing to "follow my leader," not only in social conduct but in the order of our menu, like eating fruit as a first course. Raw fruit like apples, oranges, and grape fruit are always best when eaten at the end of the meal, rather than its first item. You have only to pass your tongue over the surfaces of the teeth at the end of meals to note the difference in their "feel" following the eating of fruit as a first course and as a last. After eating fruit as a last course the teeth, wherever the fruit has passed over them will feel smooth and clean. In the other case they will not. If you wish to test something which will produce the opposite effect, maple sugar will answer your purpose.

NATURE'S RESPONSE TO REQUIREMENTS. It is curious how nature responds to requirements. Normal saliva is neither acid nor alkaline, it is neutral. If, however, you taste, say, apples or oranges, the copious flow of saliva which immediately results will be found to be decidedly alkaline. The alkalivity of saliva is markedly less pronounced an less copious if ordinary articles of diet are tasted. Exhaustive experimentation has also proved that a prolonged acid diet will produce a corresponding increase in the alkalinity of the saliva, not only while the glands are being immediately stimulated, but continuing long after eating.

Over indulgence in sugar, and in foods which when digested produce sugar, will, if persisted in for any length of time, so affect the saliva that caries will be almost uncontrolable. Cavities will develop rapidly where the teeth contact with one another in the arches. These are the cases in which the early application of silver nitrate solution proves most valuable.

## IMPORTANCE OF THE PERMANENT FIRST MOLAR.

Too much instruction cannot be given regarding the preservation of the first permanent molar which erupts somewhere about the fifth to the sixth year. It has been unscientifically called the sixth year molar. Because it arrives without any inconvenience to the child its appearance is usually not noticed, and uninformed people take it for granted that it is one of the deciduous set. They know that all the deciduous teeth beginning with the incisors are one after another replaced in due time, and if pain, following the development of a carious cavity, is complained of in the last tooth in the arch, are quite satisfied that its removal will be followed by a new tooth. They know that as the deciduous teeth are about to come out, there are no roots to them and it is a triffing matter to remove what remains. So presuming the first molar to be one of the set which was complete somewhere after the second year they do not concern themselves much with the child's first complaints. The first permanent molars are the most important teeth in the jaws. They are the Kev teeth of the permanent set, and should never be allowed to reach the state where extraction is necessary.

### CAUSES OF DEFECTS IN TEETH.

As the teeth are developed from the epithetial layer of the mucous membrane any of the exanthematous diseases may seriously affect their development. In fact any systemic disorder sufficiently severe to threaten life, may leave its mark on the developing teeth. You may often, from the location of defects showing on the crowns of teeth, determine the period, to within a year, when the subject had had a serious illness. Even a fit of convulsions, short though it may be, is often responsible for defective development. The first permanent molars and the incisors are usually the teeth showing this defective condition, measles, occurring long before the teeth are erupted being responsible for by far the greater number.

### NORMAL EXFOLIATION.

Deciduous teeth when their permanent successors are sufficiently advanced usually loosen of their own accord, the developing tooth coming from below, causing absorption of their roots. It is a curious physiological action which takes place. You probably all have noticed on the removal of a loose deciduous crown, all that remains of the tooth—its centre holds a pink pulp. The function of this pulp has been the destruction of the tooth tissue by absorption, and this it does very effectively, the resorption keeping pace with the advance of the new tooth. Our minds having been filled so recently with war, we might liken it to the retreat in good order of one army before another of superior strength.

(To be concluded in the August number)

# Minutes of the Dominion Dental Council Meeting, May, 1922

Minutes of the meeting of the Dominion Dental Council held at the King Edward Hotel, Toronto, May 20th, 1922. Present. Drs. Whittaker, Bagnall, Thomson, Magee, McGuire, Bush, Cowan, all of whom presented credentials.

Before the meeting formally commenced, Dr. Clay, examiner in Prosthetic Dentistry appeared and expressed his

views upon the whole question of examination.

Dr. Whittaker, President, opened the meeting by expressing regret at the death of Drs. Abbott and Woodbury and welcomed the two new members on the Board, Drs. McGuire and Thomson. Dr. Whittaker also recommended that it be determined to have an executive meeting in every year between Council meetings. He also recommended that a presidents' fyle be established to be held by the Secretary. He also recommended that we establish a reserve fund of at least five thousand dollars. Notices of motion were received as follows:—

Dr. McGuire presented the motion of which Dr. H. R. Abbott had given notice as follows:—"I hereby give notice that at the next meeting of the Dominion Dental Council I will move to amend the constitution as follows: That all candidates who apply for the Dominion Dental Council examination and who have commenced their Dental Course on or after August, 1921, be required to meet the pre-dental standard."—Signed, H. R. Abbott.

Dr. Thomson presented the motion of which Dr. Frank Woodbury had given notice. It read "That the constitution be amended to provide that all students of Dentistry entering college after August 30th, 1922, and who propose to take the examination of the D.D.C. must have entered a recognized Dental School requiring a five year course."—Signed, Frank Woodbury. Representative for N.S.

Dr. Magee representative for N.B. gave notice of amendment to the constitution as follows: "Should the Council or Executive Committee deem it advisable, applicants may be directed to report for examination at a centre outside their own province. In the event of such direction being decided upon, legitimate travelling expenses and a subsistence allowance of three dollars per day for the period of such examination shall be refunded to the applicant so transferred upon properly certified vouchers accompanying the

claim submitted. All conditions enacted and privileges enjoyed under the provisions of the Dominion Dental Council shall be applicable alike to both male and female applicants for Certificate of Qualification."—Signed J. M. Magee, representative for N.B.

Dr. Cowan, representative for Saskatchewan, gave notice of amendment to the constitution as follows:—That section 9 be amended by striking out "the thirty-first day of July," where it occurs therein and substituting the thirty-first day of December therefor, and by striking out the words, "First of August", and substituting "First of January" therefor.

Dr. Frank Woodbury had submitted a series of resolutions from the Nova Scotia Dental Association, which were assumed by Dr. Thomson. They read as follows: Resolved, "That the constitution of the D.D.C. be amended in such a way that the membership of any province shall commence upon the date of any regular bi-ennial meeting after said province has elected a representative. The membership of said province shall continue at least until the next regular bi-ennial meeting. Proper notice to be determined of the withdrawal of any province must be sent to the Secretary. A province must agree to accept the certificates of all persons who secured them before and during the time of their membership in the Council and the certificates of all persons who have taken partial examinations while a province is a member of the D.D.C., and who subsequently completes them. Resolved, all students of dentistry entering college after August 30th, 1922, and who propose to take the examination of the D.D.C. must have entered a recognized dental school requiring a five year course. Resolved, that the Nova Scotia Dental Association advises against the adoption of the recommendations of the Saskatchewan Dental Society, believing it is at variance with the purposes of the Dominion Dental Council. Also resolved that it is our opinion that the standards at present required for class "(" Certificates should be maintained."

The Secretary submitted his report as follows:— To the President and members of the D.D.C.

Gentlemen:—Since last we met, death has taken from us two of our members, both of them men who had served in the Council since its inception and neither of whom had ever missed a meeting of the Council. Drs. Woodbury and Abbott had both held the office of President and it is needless to say, enjoyed the esteem and respect of every one who had been associated with them in their work. Upon being advised of their death, I notified each member of the Council by wire, and acting under the instructions of the President, wired a wreath in each case. Dr. Seccombe was asked to represent the Council at the funeral of Dr. Abbott and did so.

The provinces of Ontario and Nova Scotia were formally notified of the deaths mentioned and each was asked for the name of the alternate and in case an alternate had not been appointed to have a representative elected. Notice was immediately received, paming Dr. McGuire for Ontario and Dr. Thomson for Nova Scotia.

On January 28th, 1921, I received notice from B.C. that they had decided to withdraw from the Council. The notice thus received was copied and mailed to each representative. While the notice of withdrawal and letter from Dr. Jones indicated that possibly the withdrawal was only temporary yet I have received nothing since to indicate an early return to membership. Since the withdrawal no examinations have been held in B.C., although several parties have requested that such be done. As a result of such withdrawal our certificates are not now being registered in B.C. The correspondence in connection with it is herewith submitted. Our examiner in Anæsthetics is a resident in B.C.

Notices of motion to amend the constitution have been received from Nova Scotia, New Brunswick, Ontario and Saskatchewan. Copy of each notice already appears in these minutes.

I submit correspondence covering a complaint of unethical practice preferred against a holder of our certificate.

Dr. D. N. Ross again submits his resignation as examiner, but I am pleased to say he has intimated he might consider a change to some other subject. Dr. Weicher of Regina personally made the same request.

I have to buy an additional section for the fyling cabinet. I have also had a new cabinet made for the proper keeping of forms and papers. This latter is also used for the complete new card fyling system which has been adopted.

Since last we met our finances have enabled us to invest another three thousand dollars in Victory bonds. These were purchased through Ney and James of Regina and immediately placed with the other bonds in the custody of the National Trust. This Trust Company is giving entire satisfaction and interest has been very promptly received. You authorized the holding of fall examinations at your last meeting. The first was held in 1920. At it fifty-two persons wrote on 115 papers. Of these nine failed in 11 papers. One of them was a class "D". He failed in one paper. The balance of them were class "A" who wrote chiefly in second year subjects. Of the above who failed, two asked to have a supplemental examination which was granted and in the following March both passed.

Five candidates passed their final examination at this A very large class presented itself at the June examination, 1921. One hundred and sixty-two candidates wrote on 627 papers and sixty took both practical examinations. Thirty-three passed, twenty-one failed in 27 sub-There was one class "D", balance were class "A". The fall examination of 1921 brought almost twice as many candidates as at the first fall examination. 102 wrote on 246 papers. Of these 18 failed in 20 papers. One class "C" failed in one paper, but it was discovered that he had not written on Metallurgy which is grouped with Prosthetic Dentistry. The error was in marking. He was granted a re-reading and passed. There was also one class "D" at this examination. Most of the candidates were again second vear students and finals, the Juniors not availing themselves to any large extent. The proportion of failures in the fall examination is just about the same as in the June examinations.

The students at Dalhousie asked to have the dates of both examinations changed. Their letter is submitted herewith.

It might be well to define more clearly our relations with the University of Alberta.

The treasurer submits the auditor's report as his report.

Moved by Dr. Magee, seconded by Dr. Bush, that the Secretary be instructed to write Mrs. Frank Woodbury and Mrs. Tully of London, expressing to them the sentiment contained in the following resolution:—The members of the D.D.C. desire to record their appreciation of the work of the late Drs. Harry R. Abbott and Frank Woodbury. Their many excellent qualities of heart and mind, their devotion to the interests of their chosen and beloved profession, their precept and example, will long be an inspiration which we will cherish and strive to emulate and we hereby express

our deep sorrow at the irreparable loss of their friendly

counsel and companionship. Carried.

Moved by Dr. Bush, seconded by Dr. McGuire, that the Secretary be instructed to write the party against whom a complaint of unethical practice had been made and draw his attention to his reported unethical methods of advertising. Carried.

Moved by Dr. Magee, seconded by Dr. Bagnall, that the action of the President and Secretary in purchasing three thousand dollars worth of bonds be approved. ('arried.

Moved by Dr. Bush, seconded by Dr. Magee, that we recognize the University of Alberta for examination purposes in its first, second and third year Dental Course. Carried.

Moved by Dr. Magee, seconded by Dr. Thomson, that the Secretary establish a President's fyle, so that all important letters and documents held by the President be transmitted to his successor upon the latter assuming office. Carried.

Moved by Dr. McGuire, seconded by Dr. Bush, that the President's recommendation re reserve fund be left to the executive committee. Carried.

Moved by Dr. Cowan, seconded by Dr. Bush, that the constitution be amended by striking out from section 9, paragraph 2, the words "31st of July" and substituting therefor the words "31st of December" and by striking out the words "First of August" and substituting therefor "First of January."

Motion carried and constitution declared amended.

Moved by Dr. Magee, seconded by Dr. Bush, that section 4 be amended by striking out the words "President and" from the fifth line where they occur therein. The motion carried and the President declared the constitution amended accordingly.

Moved by Dr. Magee, seconded by Dr. Thomson, that the order of business be suspended to hear from Drs. Webster and Seccombe regarding dates of holding examinations. Carried.

Moved by Dr. McGuire, seconded by Dr. Bush, that section 25 of the constitution be amended by striking out the words "Second Tuesday in June, and the First week in September" where they occur therein, and substituting therefore the words "The Tuesday of the week in which the first of June occurs, and the Tuesday of the week in which

the 20th of September occurs' respectively. In case the executive find the above dates conflict with the college examinations they are granted power to vary said dates to the extent of four days. Carried.

Moved by Dr. Thompson, seconded by Dr. Bush, that the constitution be amended so as to provide that all students of dentistry entering college after August 13th, 1922, who propose to take the examination of the D.D.C. must have entered a recognized dental school requiring a five year's course. Carried and the President declared the constitution amended accordingly.

Dr. McGuire withdrew notice of motion given by Dr. H. R. Abbott.

Dr. J. M. Magee moved, seconded by Dr. Bagnall, that the constitution be amended as per the notices of motion given by him and already appearing in these minutes. Motion carried and the President declared the constitution amended accordingly.

Moved by Dr. Bush, seconded by Dr. Thomson, that section 7, clause B, of the constitution be amended by adding the following words, "The second vice-president shall perform all the duties of the 1st. vice-president in case of the death or disability of the 1st. vice-president." The vote being unanimous, which was necessary no notice of amendment having been given, the president declared the constitution accordingly amended.

Moved by Dr. Bush, seconded by Dr. McGuire, that section 10 of the constitution be amended by adding thereto the following words:—"In case of a vacancy occurring in the executive by death or otherwise, the remaining members of the executive shall fill the vacancy thus created." Vote was carried unanimously and the president declared the constitution amended accordingly.

Dr. Whittaker then vacated the chair to Dr. Bagnall and submitted the case of Dr. Shea of Camrose, Alberta, and asked that his application be allowed to be renewed. Dr. Whittaker advised the Council that a mistake had been made by confusing the applicant with his brother and that as a result of his investigation Dr. W. A. Shea was entitled to a class "C" Certificate. Moved by Dr. Whittaker, seconded by Dr. Bush, "That Dr. W. A. Shea be granted a Certificate upon complying with the financial requirements." Carried.

Dr. Cowan submitted the application of Dr. Howden of Moose Jaw, for reconsideration of his case. Application refused.

Dr. G. K. Thomson submitted the case of Dr. C. A. Oates, of Amherst, N.S. Left to the Secretary to reply.

Moved by Dr. ('owan, seconded by Dr. Bush, "That an examiner in Anæsthetics be appointed from one of the agreeing provinces." Carried.

Moved by Dr. McGuire, seconded by Dr. Magee, that Dr. J. Stanley Bagnall, of Halifax, be appointed "examiner, in Anasthetics his duties to commence with the fall examination, 1922." Carried.

Moved by Dr. Bush, seconded by Dr. Bagnall, that Dr. D. N. Ross, of Winnipeg, be asked to examine in the subject of Anatomy and that Dr. C. H. Weicker be asked to examine

in Pathology and Bacteriology. Carried.

Dr. W. A. Black asked to be relieved of the duty of examining in Operative Dentistry. The matter of a successor was left to Dr. McGuire, he to nominate the party and forward the name to the Secretary. Later on, Dr. McGuire reported, nominating Dr. T. W. Dawson, of 2 Bloor St. East, Toronto, which nomination was accepted and Dr. Dawson appointed.

The election of officers was then called and resulted as follows:—

President.—Dr. J. M. Magee, St. John, N.B.

1st Vice-president.—Dr. W. M. McGuire, Simcoe, Ont. 2nd Vice-president.—Dr. G. K. Thomson, Halifax, N.S. Secretary-treasurer.—Dr. W. D. Cowan, Regina, Sask.

The president reported that Drs. Seccombe, Grant and McLean were in waiting and wished to address the Council, and this was agreed to. The three above named gentlemen then submitted the claims of the Canadian Dental Research Foundation and asked the Council to give said Foundation both moral and financial support.

Dr. Whittaker asked Dr. Bagnall to take the chair.

Dr. Bagnall in the chair.

Moved by Dr. Whittaker, seconded by Dr. McGuire, that the D.D.C. vote the sum of \$600.00 for Research purposes to the C.D.R.F., said sum to be equally distributed to the colleges in the agreeing provinces for Dental Research and that if any college be not in a position to avail itself of the amount during the coming two years, that such proportion be distributed equally to those available. Carried.

The treasurer's report (auditors) showed that the Council had twenty thousand one hundred dollars invested in Victory bonds, the interest upon which amounted to \$1,083.00 per year. There was also \$2,870.00 in the bank. The examiners' fees for the two years had been \$3,195.00. Examiners' expenses \$316.00, Printing and stationery \$815.00, Office expenses \$37.00. Postage and telegrams \$206.00, Express \$109.00. The receipts had been from class "A" \$6,985.00, class "D" \$1,415.00, and class "C" \$500.00, making a total of \$8,900.00.

# A Correction

Regina, May 30th, 1922.

Dear Dr.

I wish to draw your attention to a mistake made at the Council meeting and which is reported in the accompanying minutes. You will probably recall that I reported the resignations of two of the examiners. While these were being discussed some one said that Dr. Black wished to resign. I looked over my fyle, "Matters to be attended to at Council meeting," and said that I had nothing on the subject. Dr. Black was then called by phone and he said he could not act as he was going to the old country. Dr. McGuire was then asked to name a successor which he did.

But upon returning to Regina and consulting the records here I find that Dr. Black did some months ago send in his resignation giving reasons therefor. This was submitted to President Whittaker, who accepted the resignation and ordered the vacancy filled. Dr. Harry R. Abbott was at once notified and he immediately nominated Dr. Morrison of Peterborough. The nomination was sent to President Whittaker who approved and appointed Dr. Morrison. Dr. Morrison was notified and accepted the post and has now sent in his first paper which is now in the printer's hands.

The action taken at Council should be declared null and void, as all former action was perfectly in order and according to the constitution.

Yours respectfully, W. D. Cowan.

# Victoria Dental Society

Last month, the members of the Victoria Dental Society held their annual meeting, with the president, Dr. William Russell, in the chair, John W. Henderson and E. Rogers, of

Vancouver, being the guests of honor.

Following dinner, Dr. R. Ford Verrinder expressed the regret of members of the dental profession at the impending departure from the Province of Mr. Henderson, who for the past twelve years had capably represented the Temple-Pattison Company in British Columbia, and had now been promoted to the office of Dominion sales manager of the firm with future headquarters at Toronto.

At the conclusion of the address Mr. Henderson was the recipient of a handsome desk clock in leather-bound case, and suitably engraved. In acknowledging the gift, the recipient thanked the members for many kindnesses shown him, and promised a continued interest in their welfare, hoping on periodical occasions to revisit the Province. He bespoke for his successor, Mr. Rogers, continuance of the confidence that the members of the dental profession had placed in him during his years of service in the West.

During the evening reports were read by the retiring officers of the society and the report of the nominating com-

mittee unanimously adopted.

The following are the officers for the ensuing year President, Dr. William Russell (re-elected); vice-president, Dr. R. E. McKeon (re-elected); secretary, Dr. E. W. Hetherington; treasurer, Dr. B. Cummings Richards (re-elected); executive committee, Drs. H. Hare, W. N. Gunning and G. J. C. Walker.

# Waterloo County Dentists

The annual meeting and dinner of Waterloo ('ounty Dental Association was held at the Hotel Kress, Preston, last month. There was a good attendance and Dr. Ruddell, of Kitchener, presided. Following the dinner business in connection with the organization was attended to. Then followed the address of the day, given by Dr. Harry MacKenzie, of Galt, who took his subject "Diseases of the Mouth and the relationship of the Medical and Dental Profession." The election of officers resulted as follows: Dr. M. H. Hagey, Preston, first vice-president; Dr. C. Henderson, Hespeler, secretary-treasurer; Dr. R. O. Winn, Kitchener; program Dr. L. Koeppel, Kitchener.

# **Dental Council Examinations**

The following circular has been sent out from the Office of the Secretary, of the Dominion Dental Council, Regina, Sask., Dr. W. D. Cowan, 1922.

"At the meeting of the Dominion Dental Council recently held the question of the dates upon which the examinations should start was fully discussed and a decision was come to which it is hoped will better meet the needs of the students than the arrangements heretofore existed. Two examinations will be held each year. One commencing on the Tuesday of the week in which the first of June occurs, the other on the Tuesday of the week in which the twentieth of September occurs. By these changes it is believed that the expense, inconvenience and loss of time will be reduced to a minimum to the student.

"It was deemed advisable to make the spring examination apply particularly to the graduating class of that year. The date has consequently been fixed so that the graduates will be able to take their D.D.C. examination before going home thus avoiding a return journey. By thus advancing the date it will also be possible to issue the Certificate of Qualification to those who pass just that much earlier which is quite a consideration to those desirous of starting practice at once. While the spring examination is made of particular advantage to the graduating class it must be distinctly understood that it will also be open to any eligible student who wishes to write at that time.

"The date of the fall examination has been postponed with the idea of making it advantageous to students other than the graduating class. The date chosen will enable the candidate to write just before college opens. He too has been saved an additional trip to the examination point. While this fall examination has been timed to be of particular advantage to the students other than the graduating class yet it must be distinctly understood that the graduates who are otherwise eligible will have full opportunity to write at this time if they so desire.

"The Council trusts that these changes made, it is believed in the interests of the students, will be found acceptable."

# Defective Hearing Caused by Malposition

The suggestion that defective hearing was in a number of cases caused by malposition of the jaws was first (about two years ago) brought prominently to the notice of the dental profession by Dr. W. H. Wright, of Pittsburgh. He then described cases in which symptoms accompanied by deafness were relieved or abolished by "raising the bite" or artificially propping the jaws further apart in the occlusal relationship, it being Dr. Wright's contention that the abnormal shutting or elevation of the mandible which followed loss of teeth, excessive attrition, etc., caused the unduly-receding head of the condyle to exert a blocking pressure on the auditory channel. In a later paper published in the "Journal of the National Dental Association," March, 1922, Dr. Wright sums up "some of the important points and influences which have a direct bearing upon malposition of the jaws as we find it in edentulous cases." In this paper he does not directly deal with or cite instances of defective hearing, in regard to which, by the way, one wonders what significance is to be attached to the fact that no cases of deafness due to abnormal "closed bite" have so far been reported by observers in this country.

The subject is well worthy of the dull discussion presented by Dr. Wright in his paper, wherein the points concentrated upon are chiefly the harmful effects of the altered distribution of muscle pressure that follows a changed or changing relationship of the mandible and its joint to the maxilla and the glenoid fossa. "A closed bit may allow the condyles to exert great pressure upon the meniscus since they approach the floor of the fossa closer and compress the cartilage as the teeth come into central occlusion." At any rate most prosthetists of experience will be in entire agreement with Dr. Wright's conclusion that "The musculature develops habits difficult to overcome due to the abnormal relationship of the jaws."

The possibility, dealt with by Dr. Wright, of the mandible yielding to abnormal stresses and bending is a question that has often come up in orthodontics; but its practical application in the prosthetic field appears to be a somewhat novel proposition. "After the molars are lost the body immediately anterior to the angles of the mandible becomes weakened, due to the great amount of atrophy. Continued pressure by the masseter, internal pterygoid muscles, at this

the weakest point soon causes a widening of the angle, forming an obtuse instead of a right angle, with the result that the length of the mandible from symphysis to condyles is increased. The additional length of the mandible confines the motion of the condyles to a more posterior position on the eminentia and possibly to the floor of the fossa during mastication." Photographs of normal mandibles are shown alongside of mandibles with the posterior teeth lost and exhibiting a very obtuse angle. But it is doubtful that this method of throwing into contrast the mandibles of different individuals gives valid ground for inferring that deformity by bending took place. At the same time, the relatively lengthened and very elevated appearance of the coronoid process does certainly give strong support to the suggestion that an actual bending has occurred.—The Dental Record.

# One Effect of Rickets

It is generally accepted that rickets is one of the causes of delayed eruption of the deciduous teeth. In a paper on "The prevalence of rickets in an agricultural county," published in the "Medical Officer," April 8th, 1922, Mr. W. T. G. Boul, assistant school Medical Officer for East Suffolk, gives the results of an investigation based on the examination of over 13,000 children of varying ages from 5 to 14, 3.3 per cent. being found to be suffering from rickets in some degree. In the table below are recorded his findings in regard to the time of cruption of the deciduous teeth:—

Eruption of First Teeth.

n of	of First Teeth.						Percentage.		
.)	months							:)	
6	,,							13	
7	9 9							9	
8	9 9							16	
9	• •							1.)	
10	2.7						. 6	6	
11	, •					٠		6	
12	٠,							23	
13	9 9							*)	
14	, ,							6	
15	7 7							2	
2)	years							1	
								400	

The eruption of teeth in rachitic children, therefore, appears much later than in normal.—The Dental Record.



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Vol. XXXIV

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No. 7

# Insurance for Dental Teachers

What is known as the Carnegie Foundation for the advancement of teaching has undertaken many enterprises. Among them there is none more laudable than providing a retiring allowance for teachers in colleges. It often happens that teachers in colleges have passed their years of usefulness long before they retire. The teacher's salary is so notably small that he cannot afford to retire upon his savings. The Carnegie Foundation provided such a retiring allowance at the age of sixty-five. At the present time there are hundreds of retired teachers living upon the allowances provided by the Foundation and students as a consequence are receiving instruction from younger and more active minds.

One of the conditions of qualification for participation in the funds of the Foundation was that the institution should have a certain educational qualification as determined by an inspection made by the Foundation. The result was that institutions which failed to meet the qualifications lost their teachers. General college educational standards were raised to hold their staffs,

It was found after a number of years' experience that the Foundation had not provided enough money to go on forever with its original project. In many cases teachers received three-fourths of their active salaries. The teachers and the institutions were expected to pay an amount to assist in financing the scheme but altogether there was not enough.

The present scheme is to provide a means of insurance at a very low rate allowing the participants to assist more liberally than under the former plan. The Foundation has provided a million dollars to start with which will provide the administration and to spare. The teacher is to pay half the cost of the insurance and the institution the other half. It is hoped by this plan that teachers at 65 will retire on an allowance that will be adequate, to maintain them in comfort for the balance of their lives.

Institutions which have met the standards of qualification and whose teachers are spending their full time in the interests of education, may participate in the advantages offered by the Foundation.

Up to the present time, dental schools have not been qualified to participate. Dentistry or dental education had not been recognized. Although there have been dental schools in existence for the past eighty years, there are very few full-time teachers and therefore very few eligible for admission to the benefits of the Carnegie Foundation funds.

A survey of the dental schools of America has been made and during the more recent years a great number of dental schools have joined universities, making more full-time teachers, thus making it more worth-while to look into the insurance and annuities provided. Canadian dental schools might well look into providing its teachers a retiring allowance in association with the privileges provided by the Teachers Insurance and Annuities Association of America, 567, 5th Ave., New York.

The Association seeks to render three distinct services:

- I. To provide, by its Deferred Annuities, a basis upon which an institution can co-operate with its faculty in maintaining a sound, just, uniform and economical system of retiring allowances.
- II. To enable a teacher, who must act without the assistance of his college, to secure for himself a retirement provision upon favorable terms and in a form which can be adjusted to an institutional system.

III. To make available to the teacher, as an individual, life insurance upon plans especially adapted to his circumstances, and co-ordinated with his retirement provision at minimum cost.

# Our Diet and Our Teeth

America claims to have the most advanced ideas on dentistry; we claim to have some of the ablest dentists; our dental schools are second to none; we graduate more dentists each year than any other country; students come to us from foreign countries; we are really the home of the dental profession. Why does America lead in this matter? A study of the tooth conditions in our country and tooth conditions in other countries, as shown by the arriving immigrants, will throw some light on this problem.

Man, the highest in the scale of creation with all his reasoning powers, through his habits of eating and drinking, has the most diseased mouth of all animal creation. The mouth of the dog is cleaner, his breath sweet and his tongue clean. Compare the mouth of the family dog with the mouths of the human members of the family and usually you will find disease and decay in the human members of the household and not any in the dog when he has been fed on normal dog food.

### NOT NORMAL CONDITION

Is this condition usual in mankind? I think it is usual where the dietary conditions produce it, but it is not a normal condition of the race.

I have examined hundreds of mouths of school children from six to twelve years of age at the preventive dental clinic at the Harvard dental school during the past winter. With few exceptions, the teeth of these children were badly broken from decay. A comparison with children who recently arrived in this country showed very little loss of tooth tissue in the children of the Italians, Albanians, Jugoslavs, Sicilians, Austrians or Lithuanians. Some of these children had been here but a few weeks, none more than three months. Where the children had lived in the rural parts of the country no decay existed, but their teeth were very much worn. One girl, six or seven years old, showed the incisor worn halfway to the gums and the cuspids and temporary molars also showed considerable wear, but no decay was present. The fissures were well formed and the mouth clean, the tongue not coated,

as is the usual condition in school children fed upon a starchy

diet, with sweet cakes and candy.

Those immigrant children who had moved into cities when the war began had some decay, but this was due to a change in diet.

IMMIGRANTS' TEETH

As a result of these studies of children I visited the immigration station and examined middle-aged people from the same countries. As a rule their mouths were clean, though of course not so clean as in their native land, since they could not get their native food. Occasionally a tooth was missing. but most of the teeth were perfectly formed, with no fissure cavities. One man, over sixty years of age, showed all teeth present and good occlusion. The development of his jaws was very good. The fibrous food eaten required much chewing and the normal development of teeth and jaws was the result. The diet of these people, except where they have come in touch with American food products, has been such as to prevent decay of the teeth; hard, dark bread, so hard it made the jaws ache to eat it; vegetables, fruits, dark macaroni, hard goat's cheese, some fish, not much meat, no sweets, no sweet cakes, or soft crackers; no candy. Food of this character (especially fruit, if eaten at the close of a meal) leaves the mouth physiologically clean.

### A VICIOUS CIRCLE

Compare this condition with that of the mouth of the average American after a meal of our soft, sweet food. The tongue is covered with soft food, the interdental spaces are also filled with sweet, carbohydrate food. There is no exercise of the muscles made for use in mastication, as the food eaten does not require chewing.

This phase of dentistry, as shown by our dental schools, has been developed to meet a need caused by our eating habits. Our refined flour, sugar and other food products and canned vegetables (deficient in mineral or vitamine content) have helped to build up the dental profession and the medical profession as well, since the digestive disturbances caused by the food require treatment.

This is a vicious circle. The remedy is not more or better repair dentistry, but a change in dietary habits. practical illustration is brought to our doors by these immi-Their wonderful tooth development will not withstand our diet. Many of them who come to America with sound teeth sacrifice them for artificial teeth after adopting

our diet.

# A Dental Clinic Unique

A dental clinic established by girls where it costs less to have teeth filled than pulled is an innovation in Montreal unknown elsewhere in the province and probably in the Dominion.

The clinic is being successfully maintained by the Junior League in connection with the Griffintown Club. Started for members in November it is now a popular institution in its district.

At first the clinic aroused all the fears incidental to visits to the dentist's. The attendance of the Brownie ('lub. a juvenile section whose meeting day coincided with the dreaded clinic, fell from 35 to nothing, the children not daring to put in an appearanc, fearing that they were down for compulsory teeth-pulling. Gradually their fears were allayed, but not before their meeting time had been changed to a day far removed from dental operations. Confidence is now fully established and mothers now make use of the clinic for themselves and for their families.

Though the clinic is small it has a most business-like and professional appearance and is equipped in the most up-to-date manner. The equipment is of the best pattern, the walls are white and a white-robed assistant stands ready to mix fillings, sterilize instruments, and otherwise give assistance to the dentist.

#### EDUCATIONAL WORK

Another worker, also gowned in white, sits in the club library with waiting patients, makes appointments, keeps a card index of those attending and does educational work. On this great stress is laid, the dentist and his two voluntary assistants doing their utmost to encourage patients to think more of keeping their own teeth than of buying "store" teeth.

Charges are nominal and the practice established by the clinic of charging less for a filling than for extraction was instituted to stimulate "tooth-saving." Tooth brushes are sold at a very nominal cost and tooth paste is given free. To each patient a demonstration is given of the correct manner of brushing the teeth and an explanation is made of the cause of dental decay and resultant bad health.

The work of the Junior League has met with warm commendation from the Montreal Children's Hospital, the Child Welfare Milk Committee and the Child Welfare Association, all of whom send patients to the clinic. The league is planning to extend the work next season.

#### Editorial Notes

A Dental clinic has been opened at Cowichan, B.C.

Dr. H. T. Davidson has located at Frankford, Ontario.

The Quebec Rotary Club has established a dental clinic in that city.

Dr. D. J. Ferguson was the speaker at the Saskatoon Club, June 22, 1922.

Mr. B. Himmelman, of Lunenburg County, N. S., is being prosecuted for practising without a license.

Dr. G. A. McCoun was fined in the police court in Toronto, for giving a patient a requisition for liquor.

The dentists of Edmonton held their annual picnic in June, at which many special features were presented.

Mr. Brock George, a second year Dental student at the R.C.D.S., fell from a scow at Humber Bay and was drowned June 16, 1922.

Permits have been issued for the erection of a building specially designed for dentists at the corner of Sherbrooke and Guy streets, Montreal.

Dr. A. W. Thomlun has just completed a dental survey of the Canadian western provinces for McGill University and the Carnegie Foundation.

It is remarkable how the press in recent years is giving so much space to the discussion of subjects of public health, and along with this dentistry gets much attention.

The next annual meeting of the Kentucky State Dental Association will be held in Louisville, Ky., April 16, 17, 18, 19, 1923, Seelbach Hotel,—as Headquarters. A Clinical program of unusual interest is being arranged.

In the July issue of the "Cosmos" is an editorial on the tool-maker which points to the great work of Samuel White, who gave up his practise to make porcelain teeth. Dental instruments and tools are improved as the demand comes. First there must be the conception, then comes the execution. The tool-maker is a very important person but must always be second to the conceiver of the idea. Most dental instrument improvements are conceived and often executed by a dentist and later made by the tool-maker.

### Royal College of Dental Surgeons Examination Results, 1922

The results of the combined examinations of the Dental Department, University of Toronto, and the Royal College of Dental Surgeons, of the predental, freshman and sophomore years are as follows:—

#### PRE-DENTAL CLASS

The following students have completed the pre-dental year:—W. A. Brown, Saul Eugene Caplan, Thelma Lenore Coleman, George W. Cornell, Sydney Cross, Floyd Jerome Cuttell, Charles George Hewitt, Montague Elliott Jarrett, Drew Palmer Jeffries, William Henry Leach, Charles Oswell Lennox, John Archer McGowan, John Gordon McKenzie, Malcolm James McKinnon, William Barraclough Milburn, Roy Harold O'Neill, Borden Bowne Duncan Powell, Hebert Wooliver Reeves, Edmund Gordon Rodger, Joseph Ovila Sabourin, Edgar Briggs Sisley, Kenneth Wellington Sproule, Harold Arthur Swales, William George Thomas, John Edington Verth, Anthony J. Vince, Edgar Angus White, Charles Henry Meredith Williams, Henry Theodore Winters, John Bertram Wilkes, Wm. A. Brown.

The following students are required to complete credits as indicated:—T. N. Belden, French (final); S. Berrin, Physics, Chemistry (term.), Biology (final), drawing; G. H. Braden, Drawing, Shop Course (not completed on account of illness); H. R. Brown, Physics (final), Chemistry (term), French, Shop Course; L. C. Byron, Drawing, Shop Course; E. W. Connell, Modeling; F. H. Cowan, Modeling; L. A. Day, Shop Course; W. M. Edmunds, Drawing; S. Friedhoff, Shop Course; C. F. Garland, Shop Course; J. Gourlay, Drawing; E. A. Hassard, Physics (final); A. A. Kaplan, Drawing; E. L. Kennedy, Modeling; A. J. Lappin, Physics (final), Drawing; S. Lavine, Modeling; E. Merner, Shop Course; N. D. Pearson, Physics (final); C. A. Porter, Drawing; J. A. Smith, Drawing, Modeling; Alex. B. Sutherland, French (final).

The following pre-dental students, session 1920-1921, have successfully passed supplemental examinations:—J. C. Egan, French; E. H. Hewitt, French

#### FRESHMAN CLASS.

The following students have completed the freshman year; Gordon Wesley Allan, W. St. Claire Anderson, Willard Ferrier Armstrong, Weir Campbell Balmer, Archie John Barkley, George York Barnett, Manfred Paul Benger, Samuel Breslin, Reuben Brown, Bertram Joseph Byrnes, Archibald Gray Cairns, Alexander McLellan Campbell, James Murray Campbell, John Lindsay Chalmers, Robert Kingsley Clark, Cecil Irwin Coburn, William Robert Cooper, Frederick Hastings Croft, Allen Howard Cupples, George Crompton Darts, Herbert Theodore Fallaise, Charles Feader, Everett Joseph Fisher, William Ralph Foster, Donald Alan Fralick, Silas Greenberg, Edward Empey Groff, Lloyd Murray Grose, Stanley Griffis Haight, Elgin George Hargreaves, Dalton Clark Harvie, Elmer James Henderson, Arthur Edward Higgins, S. W. Holt, Louis Edmund Hubbell, Joseph Clare Hurley, Bernard Johnston, Joseph Harker Johnston, Victor Herbert Large, William John Lemay, Stephen Joseph Lescoe, Daniel Ross Lethbridge, Edwin Albert Linfoot, John Alexander Couch McDonald-William Taylor McIntosh, Norman Alexander McLeod, Ralph Dohner McNally, Bruce Crawford MacNeill, Gordon McVicar, John Patrick Markinski, James Arnold Meek, Harvey Harkness Milburn, Barney Miller, William Roland Mills Herbert Wilson Mitchell, Donald Hugh Munroe, John Alfred Nattress, George Selby Paul, William Wesley Philip, Charles John Rogers, Francis Harold Shepherd, George Wilfred Shepherd, Robert Fred Shuttleworth, Neil Carmichael Smith, Kingsley Russell Snelgrove, Darrell Epworth Staton, Manley Roy Steen, Ralph Hynes Stick, Otto Robert Thompson, Ottis Grover Truemner, Alexander Walter Wilson, Charles Russell Wray, William Scott Young, Boris Zola.

The following students are required to complete credits as indicated:—

The following students are required to complete credits as indicated:—
A. M. Bain, Dental Anatomy (Term.), Physiology, Physicis (Paper); P. L.
Bogart, Dental Anatomy (Term), Physiology; B. L. Bolasny, Physiology; J.
W. Boyd, Physiology, Ethics; G. Brule, Chemistry (Paper), Ethics; F. B. Cooper,
Chemistry (Paper); F. W. Doan, Physiology; B. K. George, Dental Anatomy

(Term); M. O. Good, Physiology; T. J. Hackett, Physics (Term); W. E. Hainer, Physiology, Physics (Paper); G. B. Howard, Physiology, Ethics; F. F. Hughes Chemistry (Term); A. E. Hughes, Physiology, Physics (Term); H. R. Kerr, Physics (Paper); W. M. McCorkindale, Chemistry (Term and Paper), Physiology; O. M. L. McLean, Ethics, H. L. Martin, Dental Anatomy (Term), Physics (Paper), Ethics; A. J. Mecklosky, Dental Anatomy (Term and Paper); H. H. Munns, Physiology; T. H. O'Connor, Dental Anatomy (Paper); H. C. Peake; Physics (Term); J. G. Perkin, Physics (Term); E. D. Ramsey, Dental Anatomy (Term); L. E. Riddolls, Ethics; N. T. Robinson, Chemistry (Term); C. M. Summerfeldt, Ethics; M. C. Wood, Dental Anatomy (Term); E. L. Wright, Chemistry (Paper), Histology (Paper), Physiology; M. Zimmerman, Dental Anatomy (Term), Prosthetic Technic.

The following students are required to take year over—N. R. Brown, W. H.

Gifford.

#### SOPHOMORE CLASS.

The following students have completed the sophomore year: Charles Garrett Adams, Harry Proctor Adams, Leopold Francis Baer, Frederick Francis Baker, Allan MacGregor Bayne, Herbert James Beattie, William Balmer Beattie, Alfred Munroe Bisnett, Dorwin McKenzie Botting, Charles Thomas Boyd, Maurice A. Bregman, William Wolfe Breslin, James Harvey Burrows, Donald Duncan Campbell, Reginald Hector Maurice Campbell, David Ormsby Carroll, Clarence Alexander Cathro, Garnet Kimberley Chapman, Cecil John Clayton, James Lorne Connell, Edmund Joseph Courville, Ronald Reeve Crawford, Owen Lewis Croft, Robert Wallace Cunningham, Harold Keith Davey, William David Davidson, John Harry Downer, Harvey Daniel Duncan, James Edwin Dunham, Harry Cecil Dunlop, Frank Henry Dunnett, Elliott Mead Dutton, George Foster Edwards, Herbert Anthony Farrell, Howard Russell Ferguson, Robert Hitchcock Ferguson, John Edwin Fleming, John Calvin Foote, Robert Malcolm Galbraith, Wilfrid Oliver Gardiner, William Robert Godard, Fred Vincent Grady, Llewellyn McKinley Gray, Gordon Wilson Greacen, Charles Joseph Greene, Edmund Thomas Guest, Oral Melvin Hall, Wilbur Hand, Stanley Harper, Lou Deswood Harris, Wilson Graham Harron, Harold Gordon Hart, Walter Alfred Arthur Haughton, Warren Leslie Heaslip, Joseph John Hewitt, Van Rowland Hill, Harvey William Hingst, Willard Leon Hipwell, William Joseph Howe, Vernon Melville Jackman, Alexander Fallis Jupp, Gordon Knapp, Sam William Lasowsky, Chas. Stanley Lawrence, Alex Liberman, Gerald McCauley, Malcolm James MacDonell, Walter Warnock McDowell, Celestin Thomas McGahey, Alfred Clare McInnes, George Chisholm Mackay, Arthur William McKinley, Keith Eugene McLaughlin, William Howard McLean, Donald Dewar Macmillan, John William Mallabar, John Claire Marrigan, Lorne Earle Massey, Herbert Mercer, James Wright Miller, William George More, James Ambrose Murphy, Glen Ivan Neale, Edward Benjamin Nind, Edward Clessón Orris, Jesse George Paterson, John McLean Paterson, William Andrew Marr Paul, Arthur Lewis Phelps, Vernon William Purdy, Charles Coleridge Ramage, William Frederick Rattle, John Fleming Reynolds, William James Riseborough, John Alexander Robinson, Cecil Le Roy Rowland, Ivan Verne Rumball, Robert Lyle Scharff, Albert Ralston Scott, Robert George Scott, Russell Potter Shepherd, William Arnold Sherwood, Bennett Sidenberg, Gordon Alexander Sinclair, Carman Sheffield Slack, Abraham David Smith, Ernest Sparling, Mary Maude E. Spence, Gordon Andrew Stewart, Harry Raymond Stewart, Clarence Edward Stoltz, Edwin Arthur Storey, Cecil Leslie Strachan, Clifford Sullivan, Theo Landridge Prior Sweet, William John Tackaberry, John Edward Toole, Bruce Arthur Urie, James Gordon Walker, Gordon Wabun Whyte, Lorne Wilkey, John Stephen Wilkinson, Frank Wood, James Ewart Wright. McLaughlin, William Howard McLean, Donald Dewar Macmillan, John William James Ewart Wright.

The following students have been granted aegrotat standing: R. L. Ma-

honey, G. E. Westman.

#### SPECIAL STUDENTS

F. L. Mills, B.A. Sc., passed in all subjects upon which he wrote, but has the following credits to complete: Histology, dental anatomy (term), operative dentisty (term). H. S. Locke, C.A.D.C., has the following credits of the first and second years to complete: Anatomy (paper), prosthetic technic, physics, histology, first and second year chemistry. H. S. Turner has the following credits of the first and second years to complete: Chemistry, chemical laboratory, operative, prosthetic, dental anatomy (term), first year physiology.

The following students are required to complete credits as indicated: C. G. Adams, physical training; H. G. Allen, anatomy (paper); J. R. Allison, materia medica (paper); T. V. Armstrong, chemistry (paper), operative (term); J. D. Barnet, osteology (term); W. R. Bristow, osteology (term); A. C. Brown, materia medica (paper), first year chem. (paper) and physics (term); J. N. Dales, operative (term); D. S. Didier, operative (term); J. H. Downer, physical training); A. W. Dyer, chemistry (term and paper), chemical laboratory, osteology (term); J. Gruber, operative (term); J. R. Jeffrey, chemistry (paper), operative (term); E. E. Moorehead, E. Kingston, anatomy (term); A. Liberman, physical training; J. Lorentz, chemistry (paper); J. C. Mabee, chemistry (paper); J. C. Malcolmson, operative (term), physiology; A. L. Meredith, chemistry (paper); C. H. Meredith anatomy (paper), materia medica (term), operative (terms); E. E. Moorehead, prosthetic (term and paper); C. H. Moses, chemical laboratory, operative (term); E. C. Orris, physical training; W. R. Prowse, operative (term); H. A. Roodman, anatomy (term), operative (term); H. G. Rothwell, physiology; J. A. Sherman, osteology (term); M. L. Simon, anatomy (term); F. C. Simms, anatomy (paper) E. D. Stinson, physiology; C. Stirtan, anatomy (term); S. Strauss, anatomy (term) J. P. Tarshesc, anatomy (term): H. F. Watson, anatomy (term), J. W. Woodley anatomy (term), operative (term), prosthetic technic, first year chemistry, histology (paper) and dental anatomy.

The following students are required to take year over: I. Abramson, H. E. Gourlie, R. W. Matchett.



The late Dr. J. G. Adams, Toronto, pioneer of school dentistry.

# Dr. Frank H. Barry, Ottawa, Ont.

Dr. Frank H. Barry, son of Mr. and Mrs. F. J. Barry, Toronto, died at the Mountain Sanitarium, Hamilton, where he had been convalescent for two months, following an opera-

tion for appendicitis.

Dr. Barry, who practised dentistry in Ottawa, was in his thirty-second year. He was born in Barrie, Ont. During the latter part of the war he served with the Dental Corps in Egypt and France. He graduated from the Royal College of Dental Surgeons in 1919. Dr. Barry was an adherent of the Roman Catholic faith, and a member of the Knights of Columbus. Besides his parents, he is survived by his widow.

Dr. Barry had been practising as a specialist in Exodontia in Ottawa since his graduation. He was buried in Mount Hope cemetery, Toronto, July 5th, 1922.

- FOR SALE—First class Dental Practice and Equipment, excellent location, reasonable rent. Lease runs for two years. Good reasons for selling. Apply, F. J. Furlong, D.D.S., Hamilton, Ont.
- FOR SALE—Complete Dental Equipment in old established office. Office rent very reasonable. Apply to C. E. Klotz, 84 St. Paul Street, St. Catharines, Ont.
- FOR SALE—Old Established Practice. Good district in Toronto. New Ritter Equipment. Address D. S. C. Co., Temple-Pattison Co., Ltd., Toronto, Ont.
- **DENTAL PRACTICE** and Equipment for sale Equipment separate if desired. 198 Spadina Avenue, Toronto. (College 322).
- FOR SALE—Ritter Dental Lathe A. C. 110-60; in excellent condition. Apply J. D. Brown, 647 King St., East, Hamilton, Ont.
- FOR SALE—\$5,000 practice. Good town and best district in Alberta. No opposition. Bargain. Address A. T. I. N., c/o Temple-Pattison Co., Edmonton, Alberta.

# Dominion Dental Journal

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#### ORIGINAL COMMUNICATIONS

What Should the Dental Student be Taught, so that He May Have a Correct Appreciation of His Relation to Affairs of Life? Ethical, Political, Economical, Financial?

Sir Robert Falconer, President, Toronto University.

Mr. President, Ladies and Gentlemen:

In discussing the subject assigned to me I shall not venture to linger very long upon the latter half of it, the economic and the financial sub-divisions. I had the pleasure of listening to your President's admirable address this morning and to the discussions which followed, and I judge that the economic side of a dentist's education is really somewhat more important than I had believed it to be. Let me merely say this: In my judgment one of the very important things on the financial and economic side is not the acquiring of economic sufficiency, but the right way in which to spend such wealth as may be from time to time acquired by a dentist, if he ever does acquire wealth. In fact, Mr. President, I think you will agree with me that one of the necessities of our modern life is that people as a whole who possess wealth, or who possess even a competency, should learn how to spend that wealth and that competency in the right way. A vast amount of the unrest that at present exists would be dissipated, and a very great deal of the envy that is directed at capital would disappear, were the possessors of that capital and that wealth so informed and so trained as in the first place to have the desire, and in the second place to know how, to spend their wealth or their competency in the right way. In my opinion the spending of wealth rather than the acquisition of wealth causes greater blan or approval; and it is one of the requirements of our modern life that on the economic and the financial side there should be a much more widespread appreciation of the duty which rests upon those who have wealth, so to direct their intelligence that they may be led to spend it properly. I rather think that this comes back to a certain personal quality, possibly to a certain ethical attitude, to a generous temperament, which, however, may be trained, and which will be trained not merely in the class-rooms or in such instruction as is given to a dentist, but in the give and take of life. It is the result of the manhood of our citizenship. I think the burden cannot be laid as a necessity merely upon the dentist—he is only one among others. Therefore I shall not linger upon this phase of the subject.

The question is asked: How is a dentist to be trained in order that he may have a correct appreciation of his relation to the affairs of life? I take it that by that title you mean something like this: How is the dentist to be so trained as to take his proper place in society? How is he to be so trained as to show forth in the practice of his profession a wise manhood and a good type of citizenship? Now, probably some will say at once that the chief way in which a dentist can fulfill his function as a citizen is by being a dentist of the very best order possible—that it is his first and primary duty to be a dentist primarily and all the time, and that if he can serve the public by showing forth qualities of mind and of skill applied with such diligence and such singleness of purpose as is within his power, he will in the very practice of his profession perform the highest function that he as a dentist is to perform. And there is a vast deal of truth in that—it cannot be denied that many of the greatest men in the world have made almost their entire contribution to society through the skill and genius with which they have carried out the life work that was definitely theirs. Certainly no man can ever justify any slackness with which he addresses himself to his professional work by pleading that he is fulfilling other duties of citizenship. If he is remiss in the duty that lies directly at his hand, that is to say, in being a first-class professional man, in the duty that is his and in which he is trained, then if he fails in that, he cannot atone for his failure by being a well-known man in public affairs, whether municipal, state, or national. So I have a great deal of sympathy with those people who say that the primary duty of any man in his profession is to stick to his job and to be in that profession the very best that he possibly can be. In fact if in all professions that rule were lived up to a little more fully, there would be fewer failures than there often are. We cannot serve two masters—we must serve the one well.

But, though what I have said is absolutely true, this does not mean that the practice of the profession exhausts the whole round of manhood, and I believe there is quite a function for a dentist to perform even when not engaged in the special work incident to his profession. However, his function in other lines may be the more poorly performed because of the very skill which, in another side of his life, he exercised in his own profession. Therefore what I ask you to consider tonight is in what way we should train a dentist in order that he may take his full place in society.

There are two sides to this question: The professional side, and the side of his manhood. In order that I may get at my subject I am going to ask you to consider two definitions that I have taken from the Century Dictionary. First, the definition of a trade: "A trade is specifically the craft or business which a person has learned and which he carries on as a means of livelihood or for profit, particularly mechanical or mercantile employment; a handicraft, as distinguished from one of the liberal arts or the learned professions." Second, the definition of a profession: "A vocation in which professed knowledge of some department of science or of learning is used by its practical application to the affairs of others, either in advising, guiding, or teaching them, or in serving their interests or welfare in the practice of an art founded on it. It involved professed attainments in special knowledge in contrast with mere skill. A practical dealing with affairs in contrast with mere study or investigation, and an application of such knowledge to uses for others as a vocation in contrast to its pursuit for one's own purposes."

So a trade is a handicraft. The dentist, while unquestionably exercising one of the most exquisitely delicate of all handicrafts, would by no means be willing to rank himself with a man in business or a man in the pursuit of a trade—dentistry is something beyond that. In addition to your handicraft, you have something that has given you the rank of a profession.

There are two main divisions, as I take it, in that definition which I think justify the imparting of the term "profession" to dentistry. I am not going to put these divisions in the same order, but reverse them. The first is that a profession is based upon a wide and liberal knowledge of the subject or the art to which a man is devoting his powers. Secondly, it is of the nature of a vocation for service. The matter of trade in which mere livelihood is so very prominent, that matter of mere livelihood and of financial returns, recedes into the background, and the idea of a vocation for service comes forth prominently.

In order that I may lead up to what I hope will throw some light on the subject, let me illustrate the idea of the word profession historically. As you know, from time immemorial there have been what have been called the three learned professions—the church, law, medicine. Although hardly necessary here, a review may be of some advantage to us therefore, I want to show how the ideas that I have brought out as to the meaning of the word profession have been illustrated by the history of these three professions, and why they have received recognition.

The Church. From near the middle ages when religion came into more prominence, the ministry of the church was based upon the widest knowledge of the time. Almost without exception the great universities were established for the purpose of the study and promotion of ecclesiastical knowledge, theology, and canon and civil law. In the middle ages the church was at the foundation of knowledge. The universities of Paris, Oxford and Cambridge were great ecclesiastical institutions. From the beginning and right down to the present time, the ministry in all its branches has maintained its hold on the people, partly because of the fact that it has required a thorough education in its members, and whenever it ceases to have a thorough education the respect of the people will disappear. In addition to that of course the Christian ministry is a body, group or profession which is definitely set aside for service. All down through history that was the idea of Christian ministry - service, Certainly if it was a matter of financial returns, they have not been very successful, if a matter of service we hope they have been.

The Law. I shall not go back farther than to English and American law in the eighteenth century. English and American law have run much the same course, and in the eighteenth century Law was regarded as one of the professions to which a gentleman could devote himself. Diplomacy, the army, the church, law—these were the chief professions. They were paid for by the state. There was an established church, army and navy paid by the state, diplomacy paid by the state. Shortly after this at least one branch of the legal

profession was also regarded as belonging to a learned profession—that of the barrister as distinguished from the attorney. The attorney accepted fees, the barrister was given honoraria which were non-collectable by law. He got them but not because he sued for them. And from these barristers the judges were chosen.

De Tocqueville, in writing on "Democracy in America" in 1835, said: "The aristocracy of the United States at that time was the legal profession." And the legal profession in its higher branches has always been accepted in the United States as one of the primary professions. In its higher branches the law is based on breadth of learning. But, you say, what about its service? Yes, it is based also on service because we know that society depends upon the justice with which law is both made and upheld. The invisible links that bind us together are the most potent of all links, and the men who create those links and who keep them strong and firm are always recognized as being among the greatest benefactors of the community. The lawyer, therefore, has always been a public servant in marked degree.

Medicine. In the history of medicine we go farther back than for Law or for the church-away back to the time of Hippocrates. In his day Hippocrates was ranked as one of the greatest of Athenian thinkers. He stood out as one of the most learned of the men of Athens. He devoted his entire time to the advancement of the profession, you know his idea as to the ethics its members should observe, an idea still accepted by the medical profession. And happy is the profession which, in the background of its life, has such a tradition as came down from Hippocrates and which has been perpetuated by such an oath, and is based upon the most accurate knowledge of the day. The Hippocratic oath bids the disciple to swear fealty to his teacher, and also bids him exercise reverence towards all patients who come under his care in regard to their life, their health, their bodily and mental ills; and the possibility that the profession should be turned to a mercenary purpose is by the oath of Hippocrates removed from its ideal. There we have pure professionalism at the beginning. All through history we have that same idea following the medical profession and today the purposes and activities of the general practitioner are not by any means bounded by the ordinary duties inherent in his profession, but, if he is to receive the reward which the ideals of the most highly trained medical men warrant, his work must be performed in a spirit

of broad humanism which makes the medical man a representative in the community and a leader among his fellows.

So we see that the learned professions are all based on the same fundamental principles — breadth of knowledge, a broad basal preparation, and a spirit of service to the community.

TRAINING OF THE DENTAL STUDENT

How is the dental profession to prepare itself for its service in the community? How is the dental student to be trained in order that he may become a fit and proper member of society and to show forth the real function of a professional man? It seems to me quite obvious how this education should be carried out. In the first place there must be a broad basic education. As I listened to the papers presented here at the morning session I was struck by the way in which the training that you are demanding for the dentist runs parallel with that which is required for the ordinary medical man. And it looks to me as though, as time goes on, more and more there will be a training on the professional side that is partly similar and partly parallel. The necessity of having an expert knowledge of the oral cavity was mentioned; but it is becoming recognized more and more that thoroughly to understand any one part of the body, one must understand the whole body, and that the basis of training and knowledge must be very much widened. That special knowledge of the oral cavity is necessary is obvious. But the dental man must know the structure of this wonderful organism, on the one side so machine-like, on the other side so mysterious and so passing all knowledge. He must know the organism on its mechanical, psychological, and personal sides. But there is more than that. Why, we ask, is the medical man trained in all the premedical sciences, or even the sciences that are not strictly medical at all? Why does the student begin with biology, chemistry, physics? Why does he pass on to physiology, biochemistry, chemical pathology, etc., on to pathology-why all that? Partly, as stated, that he may become acquainted with the organism with which he is to deal, and also incidentally the student is being trained scientifically? The laboratory is used everywhere and his powers of observation are being made acute. It is not that he remembers all these things. He must, of course, remember the most outstanding things, but it is that he is being given a scientific attitude of mind; in other words, he is being given an education along that line. We know what a vast difference in interpretation is manifest-

ed by different men when they are asked to give an account of an ordinary happening—we get the most diverse accounts of what has taken place. The inaccuracies of observation are notorious. Certainly success in medicine, just as in dentistry, depends on accuracy of observation. And the training of the scientific mind is partly at least the training to see, to know what to look for, and to be sure that you have found what is there. That is really the basis of diagnosis, and if diagnosis is necessary in surgery and in the practice of medicine, it is surely becoming increasingly necessary in dentistry also, a diagnosis which leads you back to causes. What were we dealing with this morning? One could not help but be impressed by the change that seems to be coming over dentistry. just as it is coming over the rest of medicine. You are turning to preventive dentistry now, just as in medical schools they are turning to preventive medicine. What is the basis of preventive medicine and preventive dentistry? It is just that -the scientific observation which enables you to trace diseases to and attack them at their sources. Therefore if you are to perform your function as a dentist this scientific attitude of mind must be very prominent. You may say I am getting away from my text, but this is not so very far away. One of the reasons why a professional man holds his place in the community is that he is highly educated and has been trained to observe causes. And I am quite confident that the more thorough the scientific education that is given a dentist or medical practitioner, the more certain we are to have a man who will also be able to bring his powers to bear on the troubles that are at the base of the body politic. Is it not a pleasure to listen to the discourse of a thorough student of public affairs as he diagnoses the causes that lie at the root of many ills that lie around us? He is a shrewd observer, his powers have been well trained, and by reason of being well trained he has become an observer and student of complex events on which he becomes a competent adviser. Therefore a thoroughly trained man in his profession may be a more useful man when his powers of judgment and observation are called into action in social and economic affairs.

The next point in the training of a dentist that he may take his place in society and also develop his ethical and political conscience, is that he must have a liberal education, which is a term that is very often used. I would not wish to be understood as inferring that a scientist who has been thoroughly trained is not possessed of a liberal education. He is.

But by the term liberal education, we imply such an education as will liberate the powers of man's mind. Of course, science does that to a degree, but what I refer to is the powers of man's mind liberated through science, expanded not through exact observation, but by the study of human life as it expresses itself in a great literature. That is really what liberal education is—the broadening of a man's judgment and powers by bringing him out into the larger world that is presented to us in the stream of any great national literature. An education, from the three R's up, has always had and will continue to have that element in it—the realization that a man when he appears for a few years is not an isolated speck. that therefore he cannot plunge into his life as though there were nothing behind him, but that he comes out of a mysterious past and is a debtor to that past, for he has been served by it. Therefore out of that past, through literature and its history, certain accumulated truths reach him which are to be lived over anew by him, not as handed down to him in so many packages, but presented in the form of living thought to be readjusted by him and made a part of his own mind, enabling him to rise as a member of the race to which he belongs even though he live in the world for only thirty or forty years. That is the function of great literature, and its study broadens a man's mind and places him in a new environment. So if he is to understand political and ethical problems he must be liberally educated.

Again, half our problems are solved by an accurate diagnosis. One of the reasons why we frequently are so backward and blundering is that there are so many half-educated people—earnest, but half-educated,—without a liberal training, and who through the impulse of their enthusiasm and of a kindly and good heart attack a problem that they are not prepared to solve, and often they do greater harm than if they had left it alone. A liberal education is an education which widens a man's mind sufficiently to show him the track along which the experience of the race has told him he should go.

Therefore if any professional man is to fulfill his highest function as a citizen apart from his profession, he can only do it in the best way through the study of literature. It does not matter very much what literature it is. You know the constant battle that goes on between the exponents of classical and the modern literature. We all appreciate the value of classical literature, but for the purposes outlined we are not

by any means confined to it. English literature is perhaps the most magnificent in the world, at least the only one that can vie with Greek, and in poetry there is nothing surpassing it.

In French also as in English you have all that is necessary to give the real student a liberal education through the knowledge of a first-class world of literature. The ability to use one's own tongue fluently is the mark, of course, of a liberally educated man; the ability to choose exactly the right word for a certain thought is the mark of an educated man: the ability to take the language that you have and make it the instrument of your own thought, is the mark of a liberally educated man. One will never be able lucidly to express the idea he has in mind unless behind that idea the thought is clear, so that spiritual ideas may be fitted with a language adequate for them. To take his proper place in public affairs, the well-trained professional man should be able to use his own tongue, whatever that tongue may be, in a precise, accurate, logical and expressive way, and I do not think we can pay too much attention to the training of students in that respect.

Then again, one of the results of a liberal education is that a man should be a reader. He should enjoy literature and know how to use it: not picking up ordinary books to while away an hour, but taking the great classics in which the thoughts of mankind are inbedded, books that are hard to read and that tax the understanding to get their innermost thought. interpreting a sentence at a time and arriving at your own conclusions with regard to the ideas set forth. Through reading books in that way, a little at a time, pondering them, digesting them, taking them to yourself, you will create a taste for the higher literature, thereby attaining a standard of judgment that is your own and not another's. It becomes your own when you do the hard thing, understand what is there, criticize it and say, -I know it now, and I either believe it or do not believe it. In this way you develop, you grow, your mind is becoming rapidly educated in a liberal way through daily companionship with good books, hard books, books that have in them the experiences of the race. For many it is the Bible, for others something else-some great book founded on the experience of mankind. A book like that is creative and educates one liberally. How many of us take time for that? Life is so shallow and full of haste that we do not take the time. But if we can get this habit ingrained in our

students we will thereby create an ability on their part which will help them to carry on and improve the activities of the world.

The professional man should read books that bear upon the economic problems of the day; he should know the history of his country; he should know the industrial history of the world in this century; he should be able to determine what the movements about us indicate; he should be able to form judgments in regard to what is going on in the world, and if he is to be a worthy member of society he should have his own opinion on these things and not merely pick one up from some one else. He gets that as he reads history and studies moral and economical problems, and many of the best books to be recommended to our students might be in those directions.

Another essential factor is appreciation for the beautiful. Beauty is not, after all, such a very remote thing in life. This country is rapidly developing in aesthetics, its taste is steadily improving, and so it is going to be a place to which artists will naturally turn. It is a mark of an inferior civilization to be devoid of art, to be absorbed in the merely material things of life and not be able to separate itself from the ordinary vocations. As I see it, an appreciation of the beautiful should be fundamental for any man who is to take his proper place in society.

Just a word or two as to the other side. I said that the other side of a professional calling was its public service. Here is one of the dangers: In all professions corruption comes in when the profession itself gives way to a mercenary motive, when mere livelihood is all that is thought of and the acquisition of a competence is the prominent desire of those pursuing it. A mercenary motive is never far off, but it is always corrupting. There is not much danger of the mercenary motive coming into the life of a scientific man, the man in his laboratory, but there is always danger outside of that. And in reading over the history of the professions I found that one of the essentials in those professions was that the financial return was not by any means a primary element. Every profession has to guard itself against the corruption that lies at its door. When it is tempted to become too mercenary in spirit, and when the public needs its services greatly and is willing to give anything for them. It is not only your profession, but other professions also which are today faced with that danger, a recurrent danger all down through the

centuries. It is the age-old struggle of the mercenary side with the idealist spirit. And to keep the profession pure, idealism should certainly be kept clearly before the students in their education. What is the best way to avoid the mercenary spirit? I cannot but feel that the best way is through the receiving of a liberal education. If a man's spirit has been humanized by literature, by pure minds, by art, a hobby which absorbs a great deal of his time, he is not going to become such a slave to his profession that he will in the first place devote all his time to acquiring gain, and, in the second place, to selfishly conserving it. His salvation will come from having other purposes, whether as a reader or as one who wants to benefit the public,—whatever it be that carries him out of himself and enables him to fasten his mind and thought upon something other than the very money-getting itself—that is his main protection. And, as I said before, his soul becomes humanized and the passion grows within him to contribute to the welfare of those about him, to serve by his profession those whom he is competent to serve, and so to devote himself to the ideal side of life that he can never forget that man's life does not consist in the abundance of the things which he possesses. If that conviction has entered into his soul he will fulfill the admonition of Francis Bacon when he says: "I hold that every man should be a debtor to his own profession."

# Oral Hygiene

(Delivered Before Class of Public Health Nurses, V.O.N., St. John, N.B.)

James M. Magee, D.D.S., L.D.S.

(Concluded from Last Issue)

#### KEEP MOUTH CLEAN.

We owe it to ourselves to systematically keep our teeth clean. If the teeth are kept clean the whole mouth will be clean. After meals it requires but a short time to clear out the debris of food lodged upon the surfaces which a tooth brush can reach. I have referred to chewing for a few minutes of paraffin wax. If a tooth brush is not available for several hours, wax chewing as described serves a very good purpose, and a thorough cleansing at night preparatory to going to bed will then be all that is required.

To thoroughly cleanse all the teeth in the mouth is not a difficult matter for me. I cannot understand why it is apparently so difficult for others. It would seem that all the surfaces which one can touch with the finger tip could easily be cleansed with a brush but the buccal surfaces of the posterior teeth are in a large majority of cases not kept clean. Cavities which develop on these surfaces are extremely sensitive when excavated prior to filling, and fear of its repetition seems to be the only thing that will induce some people to make the effort to keep these teeth clean.

Very little cross brushing should be done in cleaning the teeth, especially if the brush is stiff. Constant vigorous brushing, will cut the gums and wear grooves in the teeth. I have actually known the pulp to be exposed by over vigorous brushing, necessarily of course having taken some years to reach that disastrous result. The entire enamel surface of the upper incisors has frequently been worn away by the injudicious use of the tooth brush with a dentifrice two or three times a day. While occasionally a dentifrice either in paste or powder form serves a useful purpose, I personally am not an advocate of its daily use. I am however an ardent advocate of the regular daily use of the tooth brush, intelligently and effectively applied. The greatest difficulty seems to be in the matter of getting particles of food from the spaces between the teeth. The bristles of the brush must reach the debris in the same way as a toothpick does: in fact the bristles must be considered tiny toothpicks for this purpose. If you

find dust in a crack you would never be stupid enough to brush across the crack in the effort to remove it, and yet that is what the vast majority of people do when brushing their teeth. It is such a simple matter laving the brush sideways on the row of teeth with the bristles pointing toward the root ends and then with a rotating movement of the hand cause the bristles to pass into the spaces and flick out the food debris which find lodgement there. You give the tooth brush much the same movement you would when using a hand brush to clear the dust out of a crack in the floor. You make the bristles go into the crack and out comes the dust. This movement not only cleanses the spaces but gives the gums a stimulating massage. As the brush approaches the posterior upper teeth, some difficulty may be experienced in reaching their outside surfaces, the ramus of the lower jaw interfering. This may be easily overcome if the chin is swiveled toward the side in question. You may see what I mean if you place your finger against the buccal surface of the third molar and wiggle your chin from one side to the other.

To my way of thinking hot water in plenty is all that one requires in cleansing the teeth. My own habit is to take a mouthful and throwing my head backward so that it will not run out of the mouth, start operations, beginning away back and working to the front with a rotating movement. The teeth are held slightly apart; the brush laid on the side of the lower teeth first and given a full half turn, so that when stopped the bristles instead of pointing downward now point upward. The brush is then laid against the upper teeth in the same relative position and the opposite movement of the wrist is performed. The movements so closely follow one another that description cannot adequately explain the correct performance. I will therefore demonstrate it. It must not be understood that one mouthful of water serves the entire operation. Several of them are necessary.

Tooth powders which contain chalk are not desirable. Chalk will be quickly worked to the bottom of the spaces and it is next to impossible to remove it. A smear from one of the interdental spaces taken very shortly after the teeth have been thoroughly gone over with a chalk paste or powder, will show under the microscope a smaller percentage of microorganisms than a similar smear taken from a space in the opposite side of the mouth, not treated with powder. Some few hours afterward however, tests made from the same two spaces, will exhibit a vastly different result—that wherein

the chalk was deposited showing a decidedly acid reaction and a greater number of micro-organisms under the micro-

scope.

Every trace of paste or powder that it is possible to get out of the mouth should be gotten rid of. Its use in the mouth is for cleansing purposes, for the same reason that we use soap on our hands. Few of us will lather our hands with soap and not rinse all we can off them before using the towel. If we do not we leave some of the dirty soap in the minute crevices of the skin and the less we rinse off the more likely will the skin be roughened. Discomfort once created thus will next time be guarded against because we not only do not enjoy rough cracked hands, but we want people to see that we keep them clean. Teeth being hard, do not so quickly respond to ill treatment as the skin, and especially as regards the back teeth they may be kept in an uncleanly state for years and no one see them. Many people content themselves with giving the anterior teeth a few rapid whisks of the brush and call it cleaning them.

How long each day do you devote to the appearance of your nails? You will average at least five minutes. Have you ever timed yourself when brushing your teeth? Some people having favorable conditions can get a pretty thorough cleaning in a minute and a half. The average adult will require at least three minutes to go thoroughly over the mouth. Surely we ought to be willing to spend as much time cleaning our mouths as we spend on our hands. As a matter of fact, though, less than thirty seconds suffices nine out of every ten who use a tooth brush. I have timed people with whom I have travelled in sleeping cars, and anyone interested can prove the truth or falsity of my statement by making his own observations. "Tooth Brush Drill" as conducted in cities where free dental service is provided, is productive of much good. As there is the element of rivalry in it, it "takes" with children. The order of drill is definite. (No. 1) The brush is to be taken in the hand in a certain way. (No. 2) Placed on certain teeth with the bristles pointing in the direction to which the roots point, and (No. 3) rotated four times with the bristles passing from the gums down (or up as the case may be) over the teeth it embraces and into the spaces it covers until the bristles point in the opposite direction to that at the start. Then (No. 4) the brush is placed against other teeth and the same performance repeated until all the teeth have been gone over equally thoroughly. You will note however

that the brush is never rotated backward again in each exercise. It is *placed* each time in the same way against the teeth, and rotated only one way against those teeth. In addition to this rotating movement, it is sometimes necessary to force the bristles directly between the teeth with the back of the brush flat against the inside of the cheek, just as if you were about to scrub them back and forth as is usually the habit of those who brush improperly. A short thrust of the brush will cause the bristles to wiggle far into the interdental spaces and stir up the food debris, which otherwise will not be removed; a movement of about a quarter of an inch being sufficient.

It is very little use lecturing to people with advice as to this or that unless your advice is accompanied by the statement that is your habit. Demonstration and illustration in your own mouth, of condition of gums, will carry more weight than all the unsupported advice you can ever give. It should be "do as I do" not "do as I say."

# ANATOMY AND PHYSIOLOGY OF TISSUES OF MOUTH.

It is not necessary for you to keep in mind the minute anatomy of the head and face, but some knowledge of the tissues of the mouth, together with their physiology, is essential.

Briefly, the bones which form the roof of the mouth are the Superior Maxillaries, the Vomer and the Palate bones: the Inferior Maxillary forms the walls of the floor of the mouth. To them the muscles of mastication and deglutition have attachment, small not over powerful sets, for the opening of the mouth and permitting movement of the tongue. are attached to the lower jaw, strong very powerful set for crushing food, and others for forcing food into contact with the teeth. The orbicularis Oris is not attached to the bones, but serves a useful purpose acting like a purse string, keeping the mouth closed. Covering the muscles the whole interior of the oral and nasal cavities are lined with mucous membrane. Saliva enters the mouth through ducts located in the cheeks about opposite the first permanent upper molars emanating from the parotid glands, and through ducts beneath the tongue from the Sublingual and the Submaxillary glands. Besides this there is a constant exudate of moisture from tiny Submucous glands which may be observed if you turn the lip to expose its inner surface to view and hold it thus for a few

minutes, little beads of moisture slightly rosy in character will be seen. These several secretions all have their bearing on digestion. The tongue also is supplied with minute glands.

Sometimes inflammation of one of these on the tongue or the cheek or gum will result in a canker sore, and for its size I know of no tiny sore which gives quite as much pain and discomfort as one of these. It can be eradicated in ten minutes, practically painlessly, by using pure carbolic acid. Exact detail of its application must be followed if you are to get good results and cause no damage. The acid must touch only the canker sore, and knowing its size you have to prepare your applicator accordingly. Unless you gradually burrow your applicator to the very bottom of the canker sore, you merely temporize. On taking food into the mouth pain will again be experienced. When applying the remedy the mucous membrane of the mouth must be protected so that no damage will occur. Pure Carbolic Acid applied on a fine broach about the size of a sewing needle, directly to the ulcer which has been dried by extracting the exuding secretion with a tiny pledget of cotton, will eradicate the trouble. This secretion because of the inflammation will well up very quickly, so until vou get entirely through your treatment, you have to dry it several times, because otherwise it dilutes your carbolic acid. Also dry your broach and dip it anew into your pure acid. Wind just enough cotton wool fibres about the end of your broach to carry the acid directly to the gaping mouth of the gland. Carbolic acid paralyzes as it cauterizes, so the broach point is gradually and with gentle pressure worked to the bottom of the ulcer. If you have applied your remedy as it should be applied, your white eschar will not be larger than the head of a veil pin, and immediately following the rinsing away of what remains of the carbolic acid, salt food may be taken with impunity. That particular gland will trouble no more. Another use to which I put pure carbolic acid in the mouth is the treatment of fissured lips. Like discretion must be exercised in its use here as in the treatment of canker sores, so that only the part requiring treatment receives its contact. Cracked lips and the cracked corners of the mouth which usually appear with the advent of cold weather, will oftentimes be coaxed slowly to heal until you begin to congratulate yourself your discomfort is about at an end, when lo, a violent sneeze, or, in a forgetful moment, a very wide smile will cause the partially healed fissure to re-open. In treating any fissure of this kind a thin flat blade, (if nothing better is available a pen knife blade will serve) around which has been wound just enough cotton to carry your carbolic acid, is all you require. Holding the lip with a thumb and finger on either side of the fissure, draw the crack slightly open and touch it with the edge of your cauterizing implement drawing it back and forth. Gradually pull open the fissure with increasing force as you pass your blade back and forth until you have, figuratively, sawed down to the bottom of the fissure. Your pure carbolic acid treatment will be followed by complete healing without further pain or annovance if you have been thorough and got to the bottom of the fissure. Incidently I may add that this treatment is effective in the case of fissures in the nostril and in the end of the finger. I have one instance of a cure of fissured nostril which appeared every season simultaneously with cold weather, and lasted until Spring, cured at one sitting of ten minutes. The fissure which appeared every season simultaneously with cold weather, was dilated thoroughly and the lattice-like fibres with which nature was trying to keep the parts tied together was cauterized completely. Healthy granulations fill in from the bottom of the fissure. Too much care, however, cannot be exercised in protecting the entire mucous membrane with a napkin while operating on a canker sore or on fissure in the lips.

#### COLD SORES

While not within the oral cavity the ever prevalent "Cold Sore" which so universally appears upon the lips must be considered under our subject. The homely old "Saw" that "an ounce of prevention is better than a pound of cure" is apropos of this, for if treated promptly it can be prevented from reaching the large water blister state, and dried away to a thin scale which will exfoliate without either hemorrhage or exudation of serum. Several applications of camphophenique every fifteen or twenty minutes (just long enough to permit the mixture to dry) if faithfully applied for two or three hours, and after that just occasionally during the day and, if necessary, the day following its appearance, will effect this result. Like most materials used to effect cures it must be used with care. As it spreads very easily it must be applied sparingly so as not to run beyond the borders of the blisters. Otherwise it will needlessly "burn" the healthy contiguous lip tissue. Therefore it had best be applied on a tiny wisp of cotton wound around the tip of a wood toothpick. If by any chance you have applied too much, and it runs beyond your

field of operation, wipe it off.

One of the most painful loathsome types of Stomatitis has been given the name "Trench mouth." It is very contagious and infectious, attacking cleanly patients who have been unfortunate enough to come in close contact with uncleanly careless sufferers. Patients suffering from it should be segregated, and receive not only local attention at the hands of a Dental Surgeon, but also to be given systemic treatment. Liquor Arsenicalis is recognized as a satisfactory drug with which to treat it, but personally I have found a more prompt response, though perhaps at first slightly more painful, in a 10% Zinc ('hloride Solution together with peroxide for cleaning and iodine for stimulating healthy granulations.

#### PYORRHOEA ALVEOLARIS AND RHEUMATISM.

Pyorrhoea Alveolaris occurs only in cases where teeth have attained full development and practically never occurs before the age of twenty. It occurs in the mouths of those of rheumatic diathesis. It does not follow that sufferers from rheumatism, suffer from it, but most people suffering from Pyorrhoea Alveolaris suffer also from rheumatism. Pyorrhoea Alveolaris and Rheumatism are both symptoms of a condition of the system and are not in themselves diseases. Treatment of Pyorrhoea Alveolaris must be carried out by the Specializing Dental Surgeon.

#### ALVEOLAR ABSCESS

Alveolar abscesses should always be referred to the Dental Surgeon. Generally speaking a tooth affected with a chronic abscess with fistula should be extracted. An exception, however, may occur in the case of a tooth for which an operation for curetting the root end, or better still, an operation for amputation of the root end, will result in a cure.

#### FOCAL INFECTION.

Focal infection is a new Bogey. People seem to have gone daft over it. Not so long as a decade ago investigation looking to the cause of an obscure affection, revealed the fact that the particular "coccus" responsible for the trouble was found also in the sac of a "blind" abscess located at the apex of the root of a pulpless tooth in the patient's mouth. One hundred rabbits were inoculated with the active microbe found in the appendix of a patient who also had a "blind" abscess located at the apex of the root end in which the same

microbe was detected. 60% of the rabbits developed appendicitis. This was pretty conclusive evidence of the origin of the appendicitis, though one might still argue that the microbe could more easily have reached the appendix via the direct canal route. However that is not the way it was reasoned. This fact having become known, the world was advised that the real culprits for all the ills hitherto uncharted were the teeth.

#### THE X RAY

To discover which teeth were the real culprits the X Ray has been brought universally into use, and without rhyme or reason in some instances, and with very little reason in others, many valuable teeth have been sacrificed. I could cite numerous instances where readings of X Ray films were grossly erroneous, because made by individuals who did not know what they were talking about, and I could produce evidence to show after teeth had been extracted, that the conditions read by the self-appointed judge could not have been present.

People seem to have lost all sense of proportion in this direction, as they have lost it in other directions, and I suppose as time goes on history will repeat itself as some new fad gains a foothold. However, though there have been very grave abuses, the X Ray has undoubtedly proved its value, but I would urge a word of caution regarding its too fre-

quent application.

To come back to Focal infection; if it can even reasonably be assumed that any certain tooth is a menace to health, and that there is in some remote part of the body an infection for which no explanation can be accepted, it should not require much deliberation to determine its death sentence, provided an operation other than extraction is impracticable, or having been performed has not resulted beneficially. The wholesale extraction of serviceable teeth, however, is to be condemned, without first receiving the recommendation of at least two reliable Dental Surgeons. One of the accusations, following which the death sentence has been passed on very many teeth, is, that being affected with Pyorrhoea Alveolaris they are the cause of rheumatism from which the patient suffers. Pyorrhoea Alveolaris is but a symptom. There are cases on record, one of which I have now in mind, in which nature effected its own cure. How it was effected I do not know, but I do know that all the purulent discharge and looseness of teeth disappeared of their own accord, leaving the gums, firmly hugging the roots, a healthy pink colour. Since

diet and prophylaxis, intelligently combined, have effected apparent cures, it would seem to be a safe claim that, given an entire change of habits and environment, with the logical object of giving the two factors an opportunity to demonstrate their effectiveness, the whole system can be so regulated that normal conditions of teeth and gums will be a natural sequence.

Following the extensive extraction operations oftentimes ordered to cure some systemic derangement, I have seen the condition aggravated instead of being improved. In all cases, therefore, where there is a question regarding the part teeth may play in health or disease, there should be both consultation and co-operation of medical and dental specialists. Neither one has any right to dictate treatment without a full discussion of all the facts obtainable.

#### NERVE AND BLOOD SUPPLY

Nerves and blood vessels usually run side by side and the supply to the teeth is carried out this way. Each tooth root receives its supply through an opening or openings in the apex and of course through the periodontal membrane; the branches being given off from larger vessels and nerve trunks which enter the body of the bone like a well-planned water service. The trunk lines supplying the lower jaw enter that bone on the inner side of the ramus through one channel, the inferior dental canal. The upper teeth however are supplied by more than one, but as they all have the same original trunk lines through which to communicate with the brain and heart the effect is just the same. After passing through the bones, the nerves and blood vessels emerge to supply the soft tissues, the lower through the mental foramen, and the upper through other smaller openings. Under the eve is either a notch or an orifice through which some of the upper nerves and blood vessels appear to supply the soft tissues, and these as well as the ear, are the places where pain is often reflected in cases where congented pulps are in course of disintegration.

#### THE TEETH

(Development, Exfoliation and Replacement)

The deciduous teeth are twenty in number—ten in each jaw, viz.:—4 incisors, 2 cuspids and 4 molars. Though there are frequently variations in the order and time of their eruption, the central incisors, the first to appear, erupt about the sixth or seventh month. These are followed by the lateral

incisors, the first molars, the cuspids, and the second molars in the order named; the lower preceding the upper by perhaps two or three weeks; the entire deciduous set being complete at about two and a half years. (Occasionally a child is born with incisor teeth already erupted, but this is rather unusual. When such a condition exists it is a problem to know just what to do to correct so young a child when it bites the nipple while nursing. It is unwise to extract.) Some authors name the cuspids prior to the first molars in the order of eruption but the majority support the order I have named. The deciduous teeth may readily be distinguished from those of the permanent set. The six anterior teeth are relatively so much smaller, and in addition they are rarely questioned. The second molar is, however, sometimes mistaken for a permanent molar. The chief distinguishing characteristic of the deciduous molar is the heavy shoulder close to the gum line. If you pass an exploring instrument under the free buceal border of the gum surrounding a permanent molar, there is no abrupt constriction of the tooth. If however, you perform the same examination of a second deciduous molar, the instrument seems to drop away suddenly just as it passes under free border of the gum. There should not be any difficulty anyway in determining if a molar is deciduous or permanent, for if you count the teeth, the position of the tooth in question (keeping the child's age in mind) will determine it. Sometimes a deciduous tooth will not exfoliate, the permanent tooth having failed to develop. If a lower molar, which is usually the tooth so affected, it will be usually found to be much lower in the arch than the teeth adjoining, your first impression being that it is a tooth just growing which will in time assume its proper relationship with the opposing upper teeth. Too early extraction of the deciduous teeth is sometimes performed with the ostensible purpose of giving the erupting permanent tooth adjoining (not the anticipated successor of the one extracted) room to erupt in its proper place in the arch. This is a gross mistake.

#### STRUCTURE OF THE TEETH

Teeth are composed of four different structures. The body of the tooth is composed of Dentine. The crown, the portion which is exposed above the gum, is encased in enamel to provide for vigorous usage, while the remainder of the body of the tooth is covered with cementum with continuous fibrous attachment to the sockets in alveolas process. Inside

the tooth, relatively in the middle and conforming with its shape is the pulp, composed of nerves and blood vessels held together by connective tissue. Surrounding the root and intimately connected with it, is a tissue called the periodontal or pericemental membrane, classed by some as a fifth tissue of tooth structure. The germs of all teeth except the third molar are present at birth, and that of the third molar appears about the first year. Calcification, however, does not occur for a long time, the third molar not showing signs of this action until the first peramanent molars are erupting.

#### ERUPTION OF THE TEETH

The permanent teeth are thirty-two in number, sixteen in each jaw, viz.: four incisors, two cuspids, four bicuspids and six molars. The first of this set to erupt is the first molar (improperly called the "sixth year molar") at about the sixth year. The incisors replace the deciduous incisors about the seventh or eighth year, and with about the same relative periods elapsing as occurred in the eruption of the deciduous teeth, with them about a year apart, the bicuspids and cuspids erupt in succession to the deciduous molars and cuspids; the second bicuspid appearing about eleven years. Following that comes the permanent second molar at about twelve years, and lastly about six years later the third molar erupts. If the jaws have developed properly the permanent teeth should erupt in normal occulsion.

#### PAST EXTRACTION HEMORRHAGE

It occasionally happens that following an extraction, which at the time was not accompanied by any unusual hemorrhage, that on the patient reaching home, or perhaps some hours later, hemorrhage recurs and sometimes quite copiously. Unless the patient is a "Bleeder," there should be no cause for alarm. The first thing to do is clear out all the clotted blood from the socket and plug the opening, using either a styptic or not, as the conditions warrant. Adrenalin chloride is about the simplest and the most readily available article for the purpose, if a styptic is necessary. The chief thing is to keep the blood from flowing. If you saw milk leaking out of a bottle, you would at once place your finger over the opening. If you saw a molasses hogshead from which the bung had fallen (or if the cask was one containing an alcoholic beverage) some one would immediately clap a hand over the opening until something could be obtained with which to plug

it up again. The same thoughtfulness should be exercised in a case where a much more valuable fluid is escaping, viz., the life fluid of the body. Cover the orifice of the cavity from which the blood flows, keep it tightly corked, and coagulation will result in most cases. Perhaps by reason of the fact that the orifice is irregular, tight "corking" is not feasible. In such a case a styptic is necessary. Clear out the clot and insert a pledget of cotton saturated with your styptic and at once place your plug with super-imposed compress over the opening, holding it with the fingers if the patient cannot do it herself, or closing the jaws so that pressure is kept regular and constant over the parts under treatment. It has recently come to my knowledge that success can oftentimes be obtained, even in the case of those who are haemo-philiacs, or persistent bleeders whose blood does not possess a sufficiency of fibrin. Dr. Martin J. Olt of the University of Minnesota Hospital is authority for the statement that in cases of this class you can control hemorrhage by saturating lint or cotton with the blood of either yourself or of some other whose blood clots readily and applying it to the bleeding wound. The remedy is certain-Iv very simple, provided the blood supplied is not "tainted" and all ordinary remedies failing, I would advise a trial. Let me repeat, however, once the styptic is applied the superimposed compress must not, for a moment, be allowed to move. If the blood has any avenue of escape you will not get vour clot.

Tincture of perchloride of Iron, and solution of Sub-sulphate of Iron are both powerful styptics but they destroy tissue and, in the case of chronic "Bleeders," subsequent hemorrhage may occur on the removal of the dequamative tissue. Tannin and Tannic Acid are not damaging, but are not so powerful styptics as the Iron preparations. If however drastic measures must be resorted to, you will usually save much blood by a prompt and decided application of whatever agent the indications call for.

#### POST EXTRACTION PAIN.

Post extraction pain is most promptly relieved by a local application of Tincture of Aconite. Great care must be exercised in the application of this agent to make certain that none of the drug is swallowed; one drop in certain cases being decidedly toxic. In cases where there is ample drainage and the pain is not localized a hot water bag is oftentimes of great comfort. If the pain is severe enough to be reflected to

the points on the face where the nerves emerge, or give a general headache, internal administration of Anti Kamnia, Asperin or Phenacetin, under the direction of the patient's medical advisor, will sometimes be called for.

#### CLEFT PALATE AND HARELIP.

Cleft Palate and Harelip either together or individually and either single or double is sometimes met with. Early operative interference for the closure of the lip fissure is indicated, and the case should always be referred to a specialist. Cleft palate is the result of faulty development occasioned by a halt in foetal development before the twelfth week. are people who are firm in their belief that the sight of something which gives a shock to the mother will certainly place a mark on the developing child, and there are others who diametrically oppose such a theory. There is ample proof that developing children do receive marks traceable to certain impressions, but to attribute cleft palate to some shock occurring at the fourth or fifth month is ridiculous. The chances are that if the tenth week is passed there will be no possibility of that mishap occurring because normally the two superior maxillary bones will have become united to form the vault of the mouth at that period.

#### FRACTURED JAW.

Should it be your misfortune to meet with a case of either fractured mandible or fractured jaw make the best effort you can if you are the first on the scene, to place the parts in normal relationship, and at once seek the aid of a dental surgeon. The average medical practitioner rarely makes even a passably presentable result of a fracture treatment, simply because they have had no dental training whatever and even the best general surgeons fall far short of normal restoration. I have yet to see a successful issue at the hands of one of them without the assistance of a Dental Specialist. Therefore use your efforts in the patient's interests.

#### TO ERADICATE A PUS SORE.

While it is not fundamentally an oral hygienic medicament it is worth while reminding you that in addition to its soothing properties when applied to an aching tooth, Oil of Cloves is 'par excellence' the most effective substance for use in painlessly cleaning up pus pockets, like suppurating burn blisters, or any lesion except perhaps such as only an opera-

tion for enucleation can effect a cure. Flood the pus pocket by whatever means is most convenient and easy. You may make your mind easy concerning injurious effects unless it be swallowed. As it does not cauterize, its effect superficially is but mildly injurious to the tissues surrounding the pus pocket, should a quantity inadvertently escape, whereas in many cases pain and purulence cease immediately.

#### HEAD REST.

To improvise a head rest while treating mouth cases, place two ordinary chairs back to back. Let your patient sit on one. Place your left foot on the other, standing so that your knee will be directly behind the patient's head which can then be rested upon it.

#### ARTIFICIAL DENTURES.

In your rounds of duty you will meet countless wearers of artificial dentures:—appallingly numerous in country districts. Many of these people have never been instructed regarding the care of their plates and if they make any attempt to clean them, perhaps pour some water over them to float off debris of food which inconveniences them. Every artificial denture kept in the mouth for twenty-four hours will be found, on examination, to be coated with a slimy whitish deposit, the exfoliated epithetial scales from the mucous membrane.

The best article with which to clean an artificial denture is an ordinary ten cent manilla nail brush, used with a good lather of ordinary laundry soap in hot water; about as hot as you can comfortably bear your hands in. A good brushing, not using much force nor gripping the plate too tightly, is easily effective, the long bristles of the brush reaching all deep depressions. Artificial dentures should always be taken out of the mouth at bedtime, and dropped in a vessel filled with water after being given a thorough cleaning as described. They can be replaced in the morning.

The mucous membrane is supplied with innumerable little glands each of which secretes moisture. To test this yourself, wipe the vault of your mouth dry, and then hold your jaws slightly apart so your tongue will not touch it. In a very few minutes you may notice little beads of moisture dotted all over the roof of the mouth, and if you laid a piece of sheer cambric against it, it would come away showing a considerable number of wet spots. If the plate is kept constantly in contact with the mucous membrane this tissue is

bound to become somewhat unhealthy. Wearing a rubber boot all day will demonstrate the discomfort due to imprisoned moisture. The roof of the mouth especially requires a rest to permit it to recuperate after having its moisture imprisoned. A mouth which does not get such a rest will be more or less unhealthy.

#### BAD HABITS TO BE DENOUNCED.

As stated at the beginning of these lectures over 90% of the diseases afflicting mankind enter through the mouth. There are innumerable ways in which the poisoning agents gain entry. Children habitually stick their fingers in the mouth, and as they are more frequently dirty than clean, there is every chance for lurking disease germs to find favorable developing grounds. Exchange of chewing gum is also a fruitful source of supply. Almost equally bad is the habit of smokers to pass the pipe to one another. The very doubtful habit some mothers have of taking food from their own mouths after moistening it with saliva and feeding it to the child, should be unhesitatingly condemned. There will appear to you, no doubt, other sources of infection as you have experience, and your own good judgment must aid you in discountenancing what is erroneous.

Now, in conclusion, while I have given you advice regarding the treatment of some of the conditions you will meet, it is not given with the intention that you are to practice it extensively. Your own common sense will point out what ought to be referred to either the medical or the dental specialist, and what you ought reasonably to undertake yourself, so that there may be no question about infringement of either the medical or dental laws. Acting under the Board of Health, which is a Government Institution, you will of course always be under instruction as to what you undertake.

# The Canadian Dental Research Foundation

Report Presented to Canadian Dental Association Convention, May, 1922.

THE Board of Directors of the Canadian Dental Research Foundation, composed of two Directors from each province of Canada and two Directors appointed by the Canadian Dental Association, beg to report as follows:—

Five Research Bulletins have been issued:

Bulletin, Number One—
The Evolution of the Periodontal Pus-Pocket—Harold K. Box, L.D.S., D.D.S., Ph.D., F.A.A.P.
Bulletin, Number Two—
The Rupert Hall Method for Entire Upper and Lower Denture— W. E. Cummer, D.D.S.
Bulletin, Number Three—
The Dentinal-Cemental Junction—H. K. Box, L.D.S., D.D.S., Ph.D., F. A. A.P.

Bulletin, Number Four—

The Histological and Histo-Pathological Studies of the Dental Pulp—H. K.

Box, L.D.S., D.D.S., Ph.D., F.A.A.P.

Bulletin, Number Five—

Theory and Practice of Partial Denture Service with Special Reference to a Graphic Method of Design—W. E. Cummer, D.D.S.

The Financial Report of the Foundation is presented herewith, showing a balance in the Trust account of \$10,430.51, and in the Current account of \$20.99.

Since the last meeting of the Canadian Dental Association held in Ottawa, August, 1920, the total subscriptions have grown from \$6,422.53 to \$12.512.51—a net increase of \$6.090. Thus we have practically doubled our subscriptions in two vears.

Subscriptions actually paid-up and deposited in the Trust Account with the National Trust Company are from time to time invested in Government Bonds, so that the income from these investments will amount this year to approximately \$600.00. In past years we have not even had this amount of interest income and our current funds have been supplemented by generous grants from the Royal College of Dental Surgeons and the Canadian and Ontario Dental Associations which have enabled the Foundation to carry on its work.

We are yet a long way from our objective of a \$100,000 Trust Fund, and sincerely urge upon the members of the profession throughout Canada their duty toward this very important work.

The Foundation has continued to send all bulletins to the profession, without charge, in the confident hope that a generous response will be made by every dentist throughout the Country.

Respectfully submitted.

J. S. Bagnall Geo. F. Bush J. W. Clay W. D. Cowan

E. C. Jones J. M. Magee H. J. Merkeley Sylvester Moyer F.W. Ryan F.E. Smallwood F.P. Smith A.E. Webster

J. S. Dohan W. A. Hicks W. C. Oxner O. B. Price H. F. Whittaker.

R. G. McLean, President.

Eudore Dubeau, Vice-President.

Wallace Seccombe, Secretary.

W. E. Cummer, Treasurer.

E. A. Grant, Associate Secretary-Treasurer.

#### REPORT, DECEMBER 31st, 1921 CANADIAN DENTAL RESEARCH FOUNDATION

January 24th, 1921.

DR. E. A. GRANT,

Associate Secretary-Treasurer, Canadian Dental Research Foundation, 229 College Street, Toronto, Ontario.

Dear Sir:--

We have completed our audit of the books and accounts of the Canadian Dental Research Foundation from the date of its inception to December 31st, 1921, and submit herewith our report, together with the following statements and schedules:

Statements of Assets and Liabilities...
Statement of Receipts and Disbursements, Trust Account
Statement of Receipts and Disbursements, Current
Account...
Detailed List of Subscriptions...
Unpaid Subscriptions...

In remitting interest received by them on securities purchased for your account, the National Trust Company, Limited, did not deduct the accrued interest paid at time of purchase so that the following adjustment will be necessary. The amount of this adjustment is shown as a liability.

Accrued Interest paid by Trust Co., when purchasing Investments. Cost of transferring Victory Loan	\$ 55.95 50
Balance due to Trust Company  Deduct Balance due by Trust Co., as shown below	56.45 9.57
Amount due Trust Co., on adjustment	\$ 46.88
Interest on Investments received by Trust Co	\$ 143.62 65.78
Remittances made by Trust Co., to you	209.40 187.46
Less Interest on \$450.00 Bond to be retained until ownership established	
Balance due by Trust Company	\$ 9.57
Cash on hand	eived: \$ 9,231.70 95.00
Cash in Trust Company       \$ 614.30         Less Interest re \$450 Bond.       12.37	601.93
Balance due to Trust Company	9,928.63 46.88
Subscriptions Received	\$ 9,975.51

In addition to the investments shown in our report the National Trust Co., Limited, is holding to your order a Victory Loan Bond for \$450.00 of the 1934 issue until its ownership is properly established. The interest on this bond

Subject to the foregoing we certify that all our requirements, as auditors, have been complied with and that in our opinion, the accompanying Statement of Assets and Liabilities correctly sets forth the state of the affairs of the Foundation, as shown by the records, as of December 31st, 1921. Respectfully submitted,

> THORNE, MULHOLLAND, HOWSON & MCPHERSON, Chartered Accountants.

#### STATEMENT OF ASSETS AND LIABILITIES (December 31st, 1921)

ASSETS		
Current Account:		
Cash in bank	\$ 186.38 163.68	350.06
Trust Account:		
Cash in Trust Company	\$ 614.30 95.00	
Unpaid Subscriptions	1,672.00	
Due from Current Account	46.88	
Investments	9,231.70	11,659.88
		\$ 12,009.94
Liabilities		
Current Account:		
National Trust Co., Limited	\$ 6.25	
H. H. Sparks	6.34	
Trust Account	46.88	
	59.47	
Surplus	290.59	350.06
Trust Account:		
	\$ 12.37	
Interest in abeyance	+	11,659.88
Surplus, being total subscriptions to date	11,647.51	11,009.00
		\$ 12,009.94

#### STATEMENT OF RECEIPTS AND DISBURSEMENTS TRUST ACCOUNT

(From the date of the inception of the Foundation to December 31st, 1921)

RECEIPTS	
Subscriptions	\$ 9,975.51
Interest on Investments.	143.62
" Trust Funds	65.78
	\$ 10,184.91

#### DISBURSEMENTS

$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		DISBUILDING		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Investments:			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		Par Value		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Province of Ontari	0 6% —1941—\$3,000	\$ 2,948.70	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$			2,070.00	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Victory Loan			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$				
$\begin{array}{cccccccccccccccccccccccccccccccccccc$				
1.00	46 44			
Corrued Interest on Investments   55.95		0/2/6 100.		9.231.70
Sost of transferring \$1,500 Victory Loan Bond       .50         Interest remitted to Secretary-Treasurer       187.46         Sash on hand       95.00         " in Trust Company       614.30       709.30	Accrued Interest on In	vestments		
187.46     9,475.61				
9,475.61 Fash on hand 95.00 "in Trust Company 614.30 709.30				
ash on hand	interest remitted to be	cictary-ricasurer		101110
ash on hand				9 475 61
" in Trust Company	Coch on hand		95.00	3,410.01
				700.20
\$ 10,184.91	in Trust Compan	У	014.00	105.50
\$ 10,164.91				0 10 104 01
				\$ 10,184.91

# STATEMENT OF RECEIPTS AND DISBURSEMENTS CURRENT ACCOUNT

(From the date of the inception of the Foundation to December 31st, 1921)

RECEIPTS	A 1 000 00
Grants from Board of Directors, R. C. D. S.	\$ 1,000.00
Canadian Dental Association	200.00
" Untario Dental Society	200.00
Anonymous Contribution from Toronto Dentist	100.00
Interest, Investments held by Trust Company	131.25
" \$1,500 Victory Loan Bond	247.50
" Trust Funds	56.21
	\$ 1,934.96
DISBURSEMENTS	
Stationery, Bulletins, Pamphlets and Postage	\$ 1.028.43
Incorporation and Legal Fees	304.60
Dr. W. Price, Cleveland	157.00
Auditing Dental Hockey Club Accounts, 1917	40.00
Dr. R. B. Stewart, re Research Work	200.00
National Trust Co., Limited, Charges	13.86
Trational Trust Co., Limited, Charges	4.69
Interest and Exchange	4.00
	1 740 50
	1,748.58
Cash in Bank, December 31st, 1921	186.38
	\$ 1,934.96

# SECRETARY-TREASURER'S FINANCIAL STATEMENT Of Period from Dec. 31st, 1921, to May 13th, 1922 TRUST ACCOUNT RECEIPTS

National Trust Company: Invested Funds—Dec. 31st, 1921 Uninvested Funds—Dec. 31st, 1921	\$9,231.70 614.30
	\$9.846.00

Cash on hand—Dec. 31st, 1921		
Adjustment as per auditor's report	\$	9,941.00 46.88 455.00
Less interest on \$450.00 bond held by National Trust Company to your account, but the ownership of which has not been established	\$	12.37
National Trust Co.—May 13th, 1922       \$ 9,231.70         Invested Funds, May 13th, 1922       \$ 9,231.70         Uninvested Funds, May 13th, 1922       1,198.81	\$	10,430.51
To Dec. 31st, 1921, as per auditor's report To May 13th, 1922, as per attached list	\$	$\substack{9,975.51\\455.00}$
TOTAL PAID	\$	10,430.51
SUBSCRIPTIONS UNPAID		
Subscribed to May 13th, 1922. Paid to May 13th, 1922.		12,512.51 10,430.51
TOTAL UNPAID	\$	2,082.00
CURRENT ACCOUNT		
(Period from Dec. 31st, 1921, to May 13th, 1922)		
RECEIPTS		
Balance in Bank, Dec. 31st, 1921	\$	186.38
ments		265.00
	\$	451.38
National Trust Co. Adjustment, as per auditor's statement H. H. Sparks, Printing subscription forms Stainton, Downey & Evis Ltd., Cash Book Thorne, Mulholland & Co., Auditing to Dec. 31st, 1921 Interest and Exchange Photo-Engravers, Ltd., re Bulletin cuts	\$	$46.88 \\ 6.36 \\ 2.00 \\ 25.00 \\ .15 \\ 350.00$
Balance in Bank, May 13th, 1922	\$	430.39 20.99
	3	451.38

# DETAILED LIST OF SUBSCRIPTIONS (To December 31st, 1921)

Abar, Dr. Harry S., Toronto, \$5.00; Abbott, Dr. E. C., Toronto, \$10.00; Agnew, Dr. R. G., Toronto, \$5.00; Amy, Dr. W. B., Toronto, \$100.00; Anderson, Prof. G. R., Toronto, \$25.00; Ante, Dr. Irwin H., Toronto, \$25.00; Ante, Dr. I. H., Toronto, \$25.00; Armstrong, Dr. J. W., Toronto, \$10.00; Babcock, Dr. A. B., Toronto, \$30.00; Baird, Dr. D., Toronto, \$10.00; Baker, Dr. E. S., Haliburton, Ont., \$10.00; Ball, Dr. T. E., Harriston, Ont., \$10.00; Barkley, Dr. W. K., \$10.00; Beirel, Dr. G. D., Toronto, \$5.00; Black, Dr. Jas. E., Vancouver, B. C., \$5.00; Black, Dr. W. A., Toronto, \$50.00; Both.

well, Dr. J. A., Toronto, \$25.00; Bothwell, Dr. J. A., Stratford, Ont., \$25.00; Box, Dr. R. M., \$5.00; Boyle, Dr. L. H., Toronto, \$10.00; Bregman, Dr. B., Toronto, \$15.00; Brooks, Dr. C. E., Toronto, \$15.00; Butler, Dr. T. E. C., Toronto, \$50.00; B. C. College of Dental Surgeons, \$100.00; B. C. Dental Association, \$100.00; Compined Br. E. H. Toronto, \$50.00; Camping Dr. W. well, Dr. J. A., Toronto, \$25.00; Bothwell, Dr. J. A., Stratford, Ont., \$25.00; Box, Dr. R. M., \$5.00; Boyle, Dr. L. H., Toronto, \$10.00; Bregman, Dr. B., Toronto, \$15.00; Brooks, Dr. C. E., Toronto, \$15.00; Bregman, Dr. B., Toronto, \$15.00; Brooks, Dr. C. E., Toronto, \$15.00; Br. C. Dental Association, \$100.00; Campbell, Dr. E. H., Toronto, \$5.00; Canning, Dr. O. W., Toronto, \$15.00; Chalmers, Dr. W. L., Toronto, \$40.00; Childerhouse, Dr. W. C., Toronto, \$5.00; Clapp, Dr. G. W., New York City, \$125.00; Clarke, Dr. Harold, Toronto, \$100.00; Clarkson, Dr. P. E., Toronto, \$10.00; Clarke, Dr. J. W., Calgary, Alberta, \$25.00; Code, Dr. H. M., Toronto, \$5.00; Collard, Dr. C. R., Toronto, \$50.00; Code, Dr. H. M., Toronto, \$10.00; Corrigan, Dr. C. A., Toronto, \$50.00; Code, Dr. Dr. J. W., Toronto, \$100.00; Corrigan, Dr. C. A., Toronto, \$50.00; Code, Dr. P. J. W., Toronto, \$100.00; Corrigan, Dr. C. A., Toronto, \$25.00; Cote, Dr. F., Montreal, Que., \$5.00; Cowling, Dr. T., Toronto, \$25.00; Cummer, Dr. W. E., Toronto, \$20.00; Davidson, Dr. H., Toronto, \$20.00; Dental Co. of Canada, Limited, Toronto, \$100.00; Dental Hockey Club, 1917, Toronto, \$100.00; Dunif, Dr. J., Toronto, \$100.00; Dental Hockey Club, 1917, Toronto, \$100.00; Dunif, Dr. J., Toronto, \$100.00; Fallis, Dr. G. V., Toronto, \$100.00; Emmett, Dr. George, Toronto, \$100.00; Fallis, Dr. G. V., Toronto, \$100.00; Emmett, Dr. George, Toronto, \$100.00; Fallis, Dr. G. V., Toronto, \$100.00; Ganaham, Dr. Howard, Toronto, \$100.00; Hutching, Dr. G. L., Toronto, \$100.00; Ganaham, Dr. Howard, Toronto, \$100.00; Hutc Dr. M. W., \$25.00; Steel, Dr. G. J., Toronto, \$25.00; Stewart, Dr. A. A., Toronto \$100.00; Strath, Dr. J. R., \$10.00; Students of the R. C. D. S., Toronto, \$760.00; Students Parliament R. C. D. S., \$50.00; Subirana, Dr. L., Madrid, Spain, \$5.00; Sutton, Dr. C. E., Toronto, \$50.00; Switzer, Dr. W. G., \$25.00; Temple Pattison Co. Limited, Toronto, \$100.00; Thomas, Dr. P. C., Vancouver, B. C., \$5.00; Thornton, Dr. R. D., Toronto, \$50.00; Throsby, Dr. Geo., Montreal, \$50.00; Thunder Bay Dental Association, Port Arthur-Fort William, \$100.00; Trotter, Dr. W. C., \$25.00; Walker, Dr. R. R., \$15.00; Watson, Dr. P. J., Toronto, \$5.00; Webster, Dr. A. E., Toronto, \$75.00; White, Dr. J., \$5.00; White Co. of Canada, Ltd., S. S., Toronto, \$100.00; Willmott, In memory of Late W. J. B., \$100.00; Ltd., S. S., Toronto, \$100.00; Willmott, In memory of Late W. J. B., \$100.00; Woollatt, Dr. R. S., \$15.00; Wright, Dr. W. H., Toronto, \$50.00; Wunder, Dr. W. M., \$5.00; Wylie, Dr. T. H., \$5.00; Ziegler, Dr. C. H., \$10.00.

Total Subscriptions	\$ 11,647.51 1,672.00
Subscriptions Received	\$ 9,975.51

#### SUBSCRIPTIONS RECEIVED SINCE DECEMBER 31st, 1921 AND NOT INCLUDED IN AUDITORS' REPORT

Arnold, Dr. E. F., Toronto, \$5.00; Allen, Dr. A. H., Peterboro, \$10.00; Anonymous, \$1.00; Barnes, Dr. O. E., Assiniboia, Sask., \$25.00; Brett, Dr. A. J., Regina, Sask., \$25.00; Baxter, Dr. H. A., Montreal, Que., \$10.00; Berry, Dr. R. N., Caledonia, Ont., \$10.00; Dawson, Dr. T. W., Toronto, \$5.00; Kelley, Dr. Charles J., Toronto, \$10.00; Phillips, Dr. Geo. C., Toronto, \$5.00; Irwin, Dr. W. W., Moose Jaw, Sask., \$50.00; Winthrope, Dr. P. W., Saskatoon, Sask., Dr. W. W., Moose Jaw, Sask., \$50.00; Winthrope, Dr. F. W., Saskatouli, Sask., \$25.00; Gillies, Dr. W. J., Saskatoon, Sask., \$25.00; Moyer, Dr. Sylvester, Rosetown, Sask., \$25.00; Harwood, Dr. F. C., Moose Jaw, Sask., \$25.00; Fasken, Dr. L. J. D., Moose Jaw, Sask., \$25.00; Johnson, Dr. Archie L., Moose Jaw, Sask., \$25.00; Switzer, Dr. F. K., Saskatoon, Sask., \$25.00; Grant, Dr. R. N., Regina, Sask., \$25.00; Ness, Dr. W. B., Calvai, Sask., \$25.00; Skinner, Dr. F. E., Sask., \$25.00; Switzer, Dr. F. K., Saskatoon, Sask., \$25.00; Grant, Dr. R. N., Regina, Sask., \$25.00; Ness, Dr. W. B., Calvai, Sask., \$25.00; Skinner, Dr. F. E., Saskatoon, Sask., \$25.00; Rondeau, Dr. V., Rouleau, Sask., \$25.00; Salter, Dr. A. P., Saskatoon, Sask., \$25.00; Weicker, Dr. C. H., Regina, Sask., \$25.00; McKellar, Dr. H. E., Carlyle, Sask., \$25.00; Smale, Dr. R. E., Regina, Sask., \$25.00; Smith, Dr. W. F., Regina, Sask., \$25.00; Fraser, Dr. J. E., Shaunavon, Sask., \$25.00; Chegwin, Dr. A. E., Moose Jaw, Sask., \$15.00; Campbell, Dr. E. C., Saskatoon, Sask., \$25.00; Hart, Dr. O., Gull Lake, Sask., \$25.00; Howden, Dr. D. S., Moose Jaw, Sask., \$25.00; Graham, Dr. F. R., Estevan, Sask., \$25.00; Cameron, Dr. G. L., Swift Current, Sask., \$25.00; Schweitzer, Dr. H. M., Regina, Sask., \$25.00; Carson, Dr. H. G., Saskatoon, Sask., \$25.00; Parker, Dr. Chas. W., Regina, Sask., \$25.00; Martin, Dr. F. W., Saskatoon, Sask., \$25.00; Kroshus, Dr. G. L., Moose Jaw, Sask., \$25.00; Silknitter, Dr. J., Moose Jaw, Sask., \$25.00; Smith, Dr. H. L., Toronto, \$10.00; Snell, Dr. C. A., Toronto, \$15.00; Fleming, Dr. J. A., Prescott, Ont., \$10.00; Ganton, Dr. W. J., Uxbridge, Ont., \$10.00; Jordan, Dr. G. G., Toronto, \$25.00; Gunton, Dr. G. A. C., Toronto, \$2.00; McLaughlin, Dr. R. C., Paris, Ont., \$1.00; Moyle, Dr. C. T., Brantford, Ont., \$1.00; Elliott, Dr. E. V., Dunnville, Ont., \$5.00; Lederman, Dr. Sangster, Kitchener, Ont., \$2.00; Moore, Dr. F. P., Hamilton, Ont., \$25.00; Merkeley, Dr. H. J., Winnipeg, Man., \$25.00; Hartman, Dr. H. N., Meaford, Ont., \$10.00; Willinsky, Dr. Bernard, Toronto, \$5.00; Emmett, Dr. G., Toronto, \$5.00; Dubeau, Dr. Philippe, \$5.00; Charron, Dr. Ernest, Montreal, \$5.00; Marshall, Dr. O. A., Belleville, Ont., \$5.00; Elliott, Dr. C. A., Detroit, Mich., \$5.00; Dubeau, Dr. Eudore, Montreal, \$100.00; Strang, Dr. A. M., Montreal, \$10.00; Cummer, Dr. W. E., Toronto, \$10.00; McDonald, Dr. Jas. F., Hamilton, Ont., \$10.00; Gardiner, Dr. B. R., Toronto, \$25.00; O'Flynn, Dr. J. F., St. Catharines, Ont., \$25.00;

Total Subscriptions to July 1s	t, 1922	\$ 13,079.51
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Note: Saskatchewan subscriptions total \$832. This amount not included in financial statement as returns not yet received.

E. A. Grant Associate Secretary Treasurer.

### DENTAL SOCIETIES

## Nova Scotia Dental Association

The Nova Scotia Dental Association convention was held at the old Dalhousie Building, Halifax, last month, and among the registrations were: Dr. E. S. Allen, Yarmouth; Dr. H. W. Black, Sydney; Dr. J. S. Bagnall, Halifax; Dr. G. A. Chudleigh, Halifax; Dr. B. R. Covsh, Chester; Dr. F. W. Dobson, Halifax; Dr. A. W. Faulkner, Halifax; Dr. H. O. Harding, Yarmouth; Dr. G. R. Hennigar, Halifax; Dr. J. T. Lebbetter, Sydney; Dr. H. G. Macdonald, Halifax; Dr. J. G. Macdonald, New Glasgow: Dr. H. G. MacIntosh, Glace Bay; Dr. Arrabella C. M. Mackenzie, Halifax; Dr. T. Melanson, Yarmouth; Dr. W. C. Oxner, Halifax; Dr. J. P. Parker, Sydney; Dr. G. A. Polly, Lunenburg; Dr. S. G. Ritchie, Halifax; Dr. J. T. Roache, Wolfville; Dr. F. W. Rvan, Halifax; Dr. F. W. Stevens, Dartmouth; Dr. G. N. Stultz, Halifax; Dr. G. K. Thompson, Halifax; Dr. R. H. Woodbury, Halifax; Dr. W. W. Woodbury, Halifax; Dr. K. F. Woodbury, Halifax; Dr. J. H. H. Rice, Halifax.

The officers elected were as follows:—President, Dr. J. P. Parker; 1st Vice-President, Dr. G. N. Stultz; 2nd Vice-President, Dr. H. O. Harding: Secretary, Dr. J. S. Bagnall; Executive, Dr. J. P. Parker, Dr. G. U. Stultz, Dr. H. O. Harding, Dr. J. S. Bagnall, Dr. J. T. Lebbetter; Auditors, Dr. W. W. Woodbury, Dr. R. H. Woodbury; Representative to Dominion Dental Council, Dr. G. K. Thomson; Alternative, Dr. D. W.

F. W. Ryan.

# New Brunswick Dental Association

At the annual meeting of the New Brunswick Dental Society Dr. H. S. Thompson, of Toronto, gave a lecture. The officers for the ensuing year are: Dr. F. S. Sawaya, president; Dr. W. L. Gillespie, Moncton, vice-president; Dr. F. A. Godsoe, secretary; Drs, W. P. Broderick and F. A. Godsoe, president and registrar respectively of the Council of Dental Surgeons of N. B. A maritime meeting next year was discussed and a committee of arrangements appointed.

# The International Association for Dental Research

COMPONENT SECTIONS:

Boston: Dr. Lawrence W. Baker, Dr. L. M. S. Miner, Dr. George Alfred Bates, Dr. William Rice, Dr. Fred R. Blumenthal, Dr. Alfred

P. Rogers, Dr. Percy R. Howe, Dr. Eugene H. Smith, Dr. A. Leroy Johnson, Dr. H. Carlton Smith, Dr. Veraztad H. Kazanjian, Dr. Kurt, H. Thoma, Dr. George W. Wright.

Chicago: Dr. William Bebb, Dr. Frederick B. Noyes, Dr. Arthur D. Black, Dr. Victor Nylander, Dr. D. J. Davis, Dr. H. A. Potts, Dr. Thomas L. Gilmer, Dr. W. G. Skillen, Dr. Edward H. Hatton, Dr. E. S. Talbot, Dr. F. B. Moorehead, Dr. Newton G. Thomas, Dr. W. H. Welker.

Toronto: Dr. J. Frank Adams, Dr. F. C. Husband, Prof. G. R. Anderson, Dr. Andrew J. McDonagh, Dr. A. J. Broughton, Prof. J. J. McKenzie, Dr. E. W. Cummer, Dr. E. W. Paul, Dr. A. W. Ellis, Dr. Harry S. Thompson, Prof. Andrew Hunter, Dr. W. C. Trotter. Dr. A. E. Webster.

#### NEW YORK SECTION

J. Leon Williams, Chairman, Leuman M. Waugh, Secretary.

Board of Censors: Dr. Henry S. Dunning, Dr. Arthur H. Merritt. Prof. William J. Gies. Dr. M. L. Rhein, Dr. Milo Hellman, Dr. J. Leon Williams.

Members: Dr. A. Berger, Dr. V. H. Jackson, Dr. Theodore Blum Dr. F. C. Kemple, Dr. H. E. S. Chayes, Dr. Bissell B. Palmer, Jr., Dr. George W. Clapp, Dr. Frederick A. Peeso, Dr. W. B. Dunning, Dr. J. P. Ruyl, Dr. H. W. Gillett, Dr. M. I. Schamberg, Dr. R. G. Hutchinson, Dr. Paul R. Stillman, Dr. Thaddeus P. Hyatt, Dr. F. T. Van Woert, Dr. J. Lowe Young.

## SELECTIONS

# The Teeth of Londoners of the 17th and 18th Centuries

By Sir Frank Colver, K.B.E., F.R.C.S.

The following facts, obtained from an examination of a series of skulls and mandibles belonging to the seventeenth and eighteenth centuries, afford some evidence of the condition of the teeth of Londoners of that period. The skulls were examined during the opening of an old burial ground situated in close proximity to the City boundary; the cemetery was opened about the beginning of the seventeenth century and the last interments took place during the early years of the nineteenth century.

The number of adult skulls and mandibles examined was:---

(1)	Skulls with mandibles	38
(2)	Skulls only	128
(3)	Mandibles only	227

#### Complete Dentures

In examining the collection one was impressed by the number of specimens which showed that at the time of death the dentures were complete. Several of the specimens showed hereditary absence of one or more third molars; these have been included in the series of complete dentures. The figures are as follows:—

	Number	Full
	examined.	Dentures.
Skulls and mandibles	. 38	10
Skulls only	. 128	48
Mandibles only	227	103

#### CARIES OF THE TEETH

For the purpose of ascertaining the amount of earies, the specimens were divided into two classes:—

- (A) Specimens in which no teeth had been lost from disease. Included in this class were specimens showing hereditary absence of teeth.
- (B) Specimens in which teeth had been lost from disease.

The total number of teeth present in the specimens was 3,349; of these, 345 were carious, or about 10.3 per cent. Teeth lost from disease numbered 980, the loss, as far as could be ascertained, being due about equally to earies and periodontal disease.

The total number of teeth present, carious and lost, post mortem and ante mortem in the various groups was as follows.

If these figures are examined in detail, we find that in (A), (complete dentures), 1,449 teeth were present of which 59 were carious, or just over 4.07 per cent., while in (B), (incomplete dentures), there were 1,900 teeth with 286 carious, or about 15 per cent.; the number of teeth carious in all the specimens being 10.3 per cent.



#### EDITOR:

A. E. Webster, M.D., D.D.S., M.D.S., Toronto, Canada.

#### ASSOCIATE EDITORS:

ONTARIO-Carl E. Klotz, L.D.S., St. Catharines.

QUEBEC—Eudore Debeau, L.D.S., D.D.S., 396 St. Denis Street, Montreal; A. W. Thornton, D.D.S., L.D.S., McGill University, Montreal.

ALBERTA-H. F. Whittaker, D.D.S., L.D.S., Edmonton.

New Brunswick-Jas. M. Magee, L.D.S., D.D.S., St. John.

SASKATCHEWAN-W. D. Cowan, L.D.S., Regina.

PRINCE EDWARD ISLAND-J. S. Bagnall, D.D.S., L.D.S., Charlottetown.

MANITOBA-M. H. Garvin, D.D.S., L.D.S., Winnipeg.

Vol. XXXIV

TORONTO, AUGUST, 1922

No. 8

# Is The Frontal Membrane Poisoned or Infected by way of the Dentine or the Apex?

The root canal question will never down until there is sufficiently known of the histology and physiology of the tooth and the surrounding parts to make it possible for the dentist to make a fairly accurate diagnosis of the existing conditions before attempts are made at treatment. When one reads of experienced operators like Edmund Kells filling root canals immediately after removing a dead and undoubtedly infected pulp, one does not wonder that young fellows often have acute infections following their first treatments. Especially this is true when he tells us that the apex was large and that he had explored it. The tooth he had so treated had been paining the night before and when he had the good fortune to get the pulp out whole, what need was there to take the chance of adding traumalism to the infection? There are cases for immediate treatment and root filling, but who can make the diagnosis? Dr. Kells didn't because he had to trephine and apply leeches after the root was filled.

In a concurrent issue of another dental magazine appears

an article warning the young dentist against immediate treatments and root filling. The writer advocates many treatments before filling but, for the life of me, how does he know when to quit treating and fill? I once saw a patient whose upper second bicuspid had been treated every day for eighteen months. Little advance has been made in treating infections in the dentine of the tooth or beyond the apex, except in a mechanical way, in the past three or four years.

My impression had always been that the chief objection to using strong drugs in root canals of teeth was that the poison not only devitalized the pulp and dentine but also the cementum and consequently the periodontal membrane. In this way many teeth were permanently lamed and later developed focal infections. But when some noted histologists said there was an absolute barrier to the passage of drugs or infection between the dentine and the cementum, I began to wonder if arsenic devitalized the periodontal membrane by way of the cementum or through the apex. To offset this idea of a barrier, good histologists showed me specimens, under the microscope, where there were apparently direct lines of communication right through the dentine into the cementum. This sounded alright but many so-called authorities have often said that it is impossible to sterilize or disinfect dentine because drugs would not pass through it.

In the face of all this, and knowing what the histologists were teaching in the Royal College of Dental Surgeons, I asked a class of students in the technique laboratory to put a little Mithelene blue in the oil of cloves which they were using to treat the roots of teeth in the laboratory. We tried gentian violet and other coloring matter and other drugs. students soon recognized for themselves that the coloring matter contained in the drugs ran through the dentine, but, to their amusement, it always stopped at the cementum. They presumed from what they had seen that, if the coloring matter went through the dentine, the drug did also, and that, if the color stopped at the cementum, so did the drugs. The criticism was made by the students that these were dry teeth, so the next day they used wet ones with the same result. Then they said these teeth were non-vital or not recently extracted. so a half-dozen teeth, just removed from the mouth, were similarly treated with like results. The non-vitality criticism was further pressed so teeth in situo were treated with colored cloves and afterwards extracted and still the color ran into the dentine only to the cementum.

The students have not yet solved the problem of how there could be spaces through the dentine to the cementum and that coloring matter would go only to the cementum. I may say that the staff has not yet offered a plausible explanation. If there is such a barrier, then poisonous drugs are only effective through the apex and one would expect success in root treatment in proportion to the smallness of the apical opening? And is this not a fact? Every dentist knows the almost certain failure of root treatment in immature teeth and in apical or lateral punctures.

# Dentistry in Canada and England

Dr. J. G. Adami, Vice-Chancellor of Liverpool University, formerly of McGill, speaking at the annual meeting of the British Dental Association, said that in Canada, where he spent more than a quarter of a century, practically all the leading dentists were university graduates, and the profession had gained a standing equal to that of the medical men. On returning to England he was distressed to see how differently things had progressed in that country. There were a few leading men, but the profession had not the standing which it deserved. That was largely due to the fact that there was such a huge body of unqualified, unrecognized men, and when the war came, it led to frightful diffculties with regard to the care of the teeth and health of soldiers. Now that the new era had dawned, it might not be altogether pleasant for the qualified men who had borne the burden and heat of the day to see that unqualified men were going to be recognized. They had, however, to stoop to conquer, believing that they were doing something to develop that era in which no one but a properly qualified man could enter the profession, and in which the profession would really pull its weight and be recognized throughout Great Britain as a definite profession with a proper code of ethics and a self-respecting, strong and united body of members.

# School Inspection in Moncton

At a special meeting of the Board of School Trustees of Moncton, N. B., it was waited on by a representation from the Moncton Dental Society, composed of Dr. H. N. Snow, Dr. W. L. Gillespie and Dr. F. E. Burden, who placed before the Board, various phases in connection with the inauguration

of the Dental Clinic in the city schools, which was proposed by the society recently. On account of the importance of the step, the Board decided to leave the matter over for a special

meeting, before coming to any conclusion.

Dr. H. W. Snow explained that a Dental Clinic in the schools had been proposed some years ago, but had not been adopted. In all large cities they have been inaugurated in both schools and large manufacturing establishments. He regretted that owing to illness, Dr. Cormier was unable to be present at the meeting.

Dr. W. L. Gillespie said that the Dental Society did not ask for much from the Board except moral support. All they requested was light, heat, janitor service and one room. The equipment needed would be four chairs, four tables, four cuspidors, and three sets of instruments. Between \$1,500 and

\$2,000 would cover all the expenses.

Dr. Burden explained the project at some length.

He said that the objects were:

To make it possible for every child to have skilful Dental service.

To educate the public and children through a system of lectures and newspaper articles, and in this way to bring to them the message which the Dental Profession has been trained to give, showing the scientific facts which through a long period of research and investigation have now been proven to be practical and essential to public health.

To make a dental survey of all school children.

To treat without charge all children whose parents or guardians are unable to pay for private attendance or services.

To permit the organized and trained Doctors of Dental Surgery to give this service to the City of Moncton without financial remuneration.

Dr. Burden suggested that the Board of School Trustees provide a suitable infirmary and give janitor service, heat and also appoint two members to act on the administration board, one of these to act as President. Two members of this Board should be appointed by the Moncton Dental Society; two from the Child's Welfare Association; one from the Victorian Order of Nurses; one from the Board of Trade; one from the Rotary ('lub and one from the Canadian Club.

He also suggested that the Governing Board appoint the members of the Moncton Dental Society as a working staff and receive all contributions from the various sources, which will be used to maintain the services.

Dr. Burden suggested the following rules for conducting the clinic.

Three members of the staff shall be in attendance during the hours which shall be laid down in a programme for the purpose of examining and treating the children.

A form shall be provided upon which a record shall be made in duplicate. This record shall contain a diagnosis and all other necessary information.

The record cards will be handed, first, to the Chief Dental Surgeon and after a proper record being made in his office, the cards will be passed on to the teacher. The card will be provided with a detachable stub which the teacher will hold, and the card will then be given to the child to take home to the parent or the guardian. The parent or guardian will then learn the condition, which will be plainly written out for their information, and they will be requested to have any necessary dental defects attended to.

If the parent or guardian should find himself unable to meet the expense, they will approve same and return to the teacher. The teacher will immediately forward the card to the Investigation Committee of the Board of Governors upon whose recommendation the Chief Dental Surgeon will have the child treated by the clinic without charge. In cases where the parent or guardian should prefer to have the child attended to by their family dentist, the card shall be signed by that dentist after the treatment is completed, and returned to the teacher. The teacher shall then forward the card to the Chief Dental Surgeon and the parent has the privilege of again having the child examined to ascertain if the treatment is complete and satisfactory.

Dr. Burden recommended that all children, after treatment, should be examined by the attending staff, as this will encourage a better dental service and prevent error in treatment, which if left to one man may greatly injure the future dental apparatus and health of the child.

He said that it is anticipated that a few parents or guardians may object or refuse to have the child treated. He thought that it is a serious mistake to allow a child to be neglected and from a standpoint of class progress, the untreated child will lose much time on account of lack of concentration to the school work, and therefore, cost the city consider-

able money. He also spoke of the great danger of allowing a child with an infected mouth to mingle with other children on account of the almost certain contagion which such a child will spread.

Dr. Burden explained that the dentists will give to the city each year, services to the value of \$9,600 minimum. They will work during the ten months, 2,400 hours.

They will be able to examine every child in the schools of the city twice during the year, and it is estimated that they can do for those who require it, about 5,000 fillings, and attend to all the emergency treatment such as temporary fillings, etc.

He said that it is estimated that the survey will show seven out of every ten children in the Moncton schools to be urgently in need of dental services. It has been definitely proven that a group of children properly treated made 57 per cent. advance over a group which was left untreated. Both of these groups had been about equal in moral, physical, mental, and disciplinary tests, on three occasions when tests were made before beginning the experiment. (Cleveland School Test, Marion School Squad.)

We have received from Messrs. Bale, Sons and Danielsson the first two numbers of a monthly magazine entitled the *Nature Lover*. As the title indicates, it makes its appeal to the field naturalist rather than to the scientist. The magazine is well produced and covers a wide field and should be assured of popularity among those who are interested in Nature study.

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### ORIGINAL COMMUNICATIONS

# To Prevent Dental Caries by Liet

Dr. Percy R. Howe, Boston, Mass.

Read before the Institute of Dental Teachers, Montreal, January, 1922.

It has long been held by the great majority of investigators that the cause and the prevention of dental caries are to be found in the character of the diet.

Recent studies upon the subject have strengthened this view, for through feeding various food combinations, very significant effects have been produced upon the teeth of living animals. The nature of the alterations in tooth structure that have followed this experimental feeding and the regularity with which they may be produced, must. I believe, be considered a distinct advance over theories based on the action of test-tube mixtures upon extracted teeth; particularly when these theories fail when applied to experimental animals. Yet the theory of Miller has been so generally accepted and so many are firmly convinced of its verity that it is difficult for them to conceive of any other explanation of the process of dental caries.

Can we say that after nearly forty years' trial of the fermentative theory dental caries is not fully as prevalent as ever? Is it not the most common pathological condition that exists?

The formation of a committee to investigate the cause of caries by the British Medical Research Commission shows that in their opinion, the present theory does not explain the condition. So that for the moment, it would seem profitable to examine into Miller's theory in order that we may intelligently proceed with the discussion of the topic of this paper.

Miller based his theory on the simple experiment of placing extracted teeth in a fermenting mixture of bread and saliva. This he renewed from time to time that it might not become alkaline. After from three to six months, he obtained effects which he considered to be true caries. Black said of these effects, that anyone in a moment could tell the difference between them and true caries. In a repetition of his experiments, these effects occurred on some teeth and on others no effect was discernable. Such teeth as were effected, appeared like teeth etched by an acid; which indeed they were.

Miller studied the carious mass. He experimentally ignored the underlying tooth substance, although he does mention the hyaline zone immediately in advance of the carious area. Now in all cases of caries, this hyaline area is to be found extending from the pulp to the cavity. Hyaline bone is considered degenerate bone. Hyaline dentine means at least an alteration in structure of the tooth substance. Under polarized light, this area is shown to be crystalline in character, that is, the colloidal-crystalloid-calcium combination of the tooth has undergone a change.

Miller himself, in summing up his points upon caries, speaks always of the structure of the teeth. He wonders why the teeth of pigs, which feed largely on fermenting foods, do not decay and thinks this is due to the structure. It is in truth the structure of the teeth that needs to be considered in the prevention of caries, whatever the modus operandi of the process may eventually prove to be. Too often, it is believed and taught, that the dentine once formed is a fixed structure. The experiments of Mrs. Mellanby, of Zilvo and Wells, and of Howe, have shown that formed dentine and enamel may undergo every stage of alteration from the formation of interglobular spaces to the complete decalcification of the tooth; that is, formed dentine in the experimental animal may be completely decalcified by the character of the diet. And it is on the basis of this fact that I shall venture to outline some of the things concerning the diet that it seems necessary for the dentist to know if he is to prevent caries.

It should be pointed out to the student that races living on natural foods are comparatively free from caries, while in civilized communities, caries is almost universal. It may be shown that when civilized foods creep into the settlements, which have been caries free, decay of the teeth begins, as among the Esquimaux, Icelanders, or along the Labrador coast. It is a well known fact that emigrants arrive at our

shores with excellent teeth, but after living on our foods for a few months or years, they have a great deal of decay of the teeth. But it is not enough to teach, I believe, that this is due to the fermentable carbohydrates. Other food factors need to be considered. Rather should it be taught that caries is due to the lack of certain definite food substances, as I shall endeavor to show further on.

It should be pointed out to the student that between natural foods and urban foods, great differences exist. In the refining, the over-cooking, the fractioning, the reconstructing, in drying, and indeed in most methods of preserving foods, however necessary and valuable they may be, certain elements are lost.

The more recent studies upon nutrition have shown that very profound effects follow the lack of any single food element. Until quite recently, it was believed that a diet of protein, carbohydrates and inorganic salts, furnished all the elements needed for the support and maintenance of the animal organisms. But Hopkins, and before him, others have showed that animals fed on such a diet do not live. He says that the animal organism is adjusted to live on vegetables and other animals and these contain countless substances other than protein, carbohydrates, fats or inorganic salts.

There have been shown to be three groups of unknown food substances besides the proteins, carbohydrates, fats and inorganic salts that are necessary for growth and development and for life itself. These for the present, are termed the fat-soluble A group, the water soluble B group and the water soluble C or antiscorbutic group. It is through a deficiency of the fat soluble A group that Mrs. Mellanby has obtained her effects upon the teeth of pups. It is through a deficiency of the anti-scorbutic group that Zilvo and Wells produced effects upon the teeth of guinea-pigs and it is through the antiscorbutic deficiency that Howe obtained extensive decalcification in the teeth of guinea-pigs.

It should be stated to the student that these unknown food factors are still the subject of a great amount of study and that very likely the present classification may be changed, but that so far as their nature is at present understood, they seem to be activators of metabolism or catalytic agents. There is abundant proof that they play an important part in calcium metabolism.

Foods containing these substances should be taught the student. He should also be familiarized with the ability of the various groups to withstand heat, drying, etc.

Next in importance for sound teeth is to have some conception of the amount of calcium required during various times of life. There is a great difference in the estimations recorded. But it is evident that a pregnant mother needs more calcium than is ordinarily required for the adult, and calcium containing foods should be recommended in consultation with the physician during this period. The growing child also requires more calcium per unit of weight than does the adult, for allowance must be made for growth. The estimates given by Helt, Courtney and Fales, on a considerable number of children, is as follows: for an infant, living on a modification of cow's milk, the intake should be at least .19 gms. CaO per kilogram, of which from 35 to 55 per cent, is absorbed, or .09 gms. CaO per kilogram. The best absorption occurs when a definite relation of fat to calcium intake occurs or when 4 gms, of fat is taken for each kilogram and at the same time from .045 to .060 gms. CaO is taken for each gram of fat.

For children on a mixed diet an intake of .108 gms. of CaO is needed and when the fat exceeds 3 gms. per kilogram the best absorption occurs. For each gram of fat, from .03 to .05 gms, of CaO is needed, or from .09 to .150 gms, of CaO per kilogram. These figures are somewhat higher for the calcium requirement than those ordinarily given in text-books on feeding which I believe, as indicated by the extensiveness of dental defects, have been placed too low. Now Sherman has estimated that a man of 154 lbs, weight needs .630 gms, of CaO, or the child of 44 lbs. needs about three and one-half times as much calcium as does the adult. Sherman has also shown that in an examination of some 225 American dietaries about one in six is deficient in calcium for the adult. How much more then must American dietaries be deficient in calcium for children! So far as is known an excess of calcium does no harm. It is merely excreted. But a deficiency is followed by very pronounced pathological symptoms, failure to grow, nervous conditions, and sound teeth cannot be made without the necessary building elements. Calcium salts are among the most important in the body. They maintain the equilibrium between nerve and muscle action. They are the regulators for almost any disturbance in the balance of the inorganic constituents of the body and they are those most

frequently absent in foods. The student should know the calcium containing foods.

In some unreported experiments on animals placed upon diets to which no added portion of calcium was made, the teeth were previously examined and found to be sound, have been found to have undergone marked destructive changes. The calcium had been taken from the dentine extensively.

Nor is the calcium supply alone to be considered by the student. He should understand under what conditions calcium is or is not properly utilized by the system. The place of absorption and of excretion should be taught him. The effect of endocrine derangement upon calcium metabolism is well known and should be explained.

The student should also have an idea of protein requirements at the various periods of life. The difference in the values of proteins should be pointed out to him. Their purpose and how they are metabolised he should understand as well as the manner in which they are estimated.

The carbohydrates have been dwelt upon more than any other things in relation to dental caries, but mainly from a local point of view. The student needs to have a broader knowledge of these substances, how they are utilized in the body, the amount needed, and how they act. He should be told that they are protein sparers; that they serve to keep down certain harmful bacterial life.

The student should be familiar with what the calorie stands for in studies in metabolism, for this has long served as a unit of measurement in metabolic studies and he should be taught how to estimate the calorific values of food. The calorific requirements should be taught him as one of the fundamentals of nutritional work. The proper balancing of foods needs to be understood in order that the student may form an opinion as to whether the individual is having enough of all food elements or an excess of some and a deficiency of others.

In brief, the dentist needs as an essential part of the curriculum, a working knowledge of dietics and metabolism. The very great variety of modern foods makes this necessary. The danger is that he will receive this information in too condensed a form. The prevention of caries is only to be attained in this way. Most of the recommendations regarding foods given by dentists are good, but they are not enough,

for example, some rely exclusively on coarse foods and grains. Undoubtedly these are excellent. Not only do such foods act solely upon the teeth locally but on account of their content of roughage they act upon the entire alimentary canal. The use of any organ tends to develop it and keep it vigorous. Yet in experimental animals, fed on coarse hard foods, the teeth decalcify extensively. Dr. Pickerell advocates the use of sapid foods to incite a greater total alkalinity of the saliva. These are excellent foods and most of them are high in calcium content and contain the food accessory factors, both of which act to induce systemically better calcification of the teeth. Sugars are constantly condemned and rightly, for if the child eats sugar before his meals, he destroys his appetite for tissue building materials. After his meal, he soon becomes hungry and eats more sugar, with the result that he is living too largely on sugar. Sugar, in a reasonable amount is a good food. Sugar in excess, is a very common and deleterious thing.

For sound teeth, calcium containing foods and the agents necessary for the fixation of the calcium are especially deserving of our attention. More of the green raw foods, of natural foods, are needed as an added part of our diets.

The importance of fats in the retention of calcium is shown in the work of Holt, Courtney and Fales and is given above. The effects upon the calcification in the teeth by the substitution of lard for butter fat has been shown by Mrs. Mellanby. The student should be taught the importance of fats in the economy particularly as the inability of children to tolerate fat has been emphasized. The tolerance to fats may be raised as is shown on text books on feeding and it would frequently be for the physical good of the child if fats were substituted for carbohydrates in the diet.

# To Prevent Dental Caries and Diseases of the Supporting Structures of the Teeth by Prophylaxis

Bruce L. Taylor, D.D.S., Washington, D.C.

Read before the Institute of Dental Teachers, Montreal, January, 1922.

The subject as assigned to me by your committee was as follows: "What Should the Student be Taught so That He May be Prepared to Prevent Dental Caries?" I have taken the liberty to add to this "And Diseases of the Supporting Structures of the Teeth." I feel today that if I am to tell you how I teach oral prophylaxis and mouth hygiene, that it would be impossible for me to confine my remarks to the prevention of dental caries alone, when I am so fully aware that as many teeth are lost and just as profound systemic disturbances are caused by diseases of the supporting structures.

If there is any phase of operative dentistry that has been sadly neglected in the past, it is the teaching of how to properly clean the teeth. And let me say right now that the reason of this neglect lies with the teaching staff of the school. It isn't any one man's business to teach oral prophylaxis—it is the business of the faculty.

Generally the first operation a student is required to do when he enters the infirmary is to clean some patient's teeth. He is looked down upon and cajoled by the boys who are doing other kinds of work and so he begins to shun this operation and there remains in his mind a feeling of chagrin whenever he has it to perform. It even sticks to him after he graduates and has a practice of his own, as is shown by the thousands of teeth that are lost today by nothing but the wholesale neglect of the dental profession. If the dental profession knows how to properly clean teeth, they do not do it and so the public has to suffer.

What we men of the dental schools of Canada and the United States have to do today is to teach oral prophylaxis and mouth hygiene as it should be taught. Teach it so that every student who graduates will go out capable, ready and willing to practice preventive dentistry as it should be practiced. Then and not until then will the public begin to reap its reward and preventive dentistry will not be a myth.

When to Teach Prophylaxis
I believe if we are to instill into the minds of our students

the value of oral prophylaxis and what it means so far as preventing dental caries and diseases of the supporting structures of the teeth is concerned we should have every man on the faculty lay stress upon the subject. Impress upon the mind of the student the fact that each pulp he has to remove, each tooth he has to replace by crown, bridge or plate, could have been saved had a proper knowledge of mouth hygiene ben practiced. By this method the freshmen and sophomore classes would become imbued with the spirit of what a clean mouth means to the health of an individual and when they take up the study of this branch in the Junior and Senior years they will realize the more fully its value.

#### How to Teach

I believe that oral prophylaxis should be taught to the junior and senior classes. The text book I recommended is "Mouth Hygiene" by Fones. I wish it were in the hands of every practitioner of dentistry in the United States and Canada. It would be the means of saving millions of teeth and the lives of thousands of people. At Georgetown, we will try out the following plan this year: Beginning with the second semester, the junior and the senior students will be required to devote all of their time each Saturday afternoon to this subject. Of this time, the first forty minutes or the first hour will be devoted to lectures and all the rest will be spent in practical work in the infirmary.

The lecture course should consist of the following. A brief history of dental caries extending back to the beginning of civilization. A study of the skulls of various races, their habits, methods of caring for the teeth, preparation and kinds of food. What mouth hygiene has done for public school children. Causes and kinds of dental caries. Progress of dental caries on smooth surfaces, in pits, grooves and fissures. Faults of form and arrangement of teeth. Traumatic occlusion. Malecotic and sclerotic teeth. Prenatal and post-natal influences. Susceptibility and immunity. Crowns, bridges, plates, fillings, lack of contact and loss of teeth, as contributing causes. Deposits of calculus and diet. History of diseases of supporting structures of the teeth. Disease of gingivae, pericementum and alveolus, their etiology, pathology, symptoms, diagnosis, treatment and prevention.

For the practical work in the infirmary the students are required to draw numbers, so that they may be paired off. For instance, No. 1 and 2 would be one pair, 3 and 4 another

pair and so on. No. 1 will be No. 2's patient the first day, No. 2 will be No. 1's patient the next day. Each student is required to purchase a tooth brush from the infirmary supply, and he is furnished with tooth powder, or paste and straining solution with cotton and an applicator. Then with the patient seated in the chair the demonstrators instruct the operators how to stain the teeth, one side at a time, upper and lower, so as to show up the placques. The staining solution is applied and allowed to remain for one or two minutes, then the mouth is rinsed with water to remove excess. The patient with the aid of a hand mirror is also required to observe the locations of the stains. The tooth brush is dampened and some of the paste or powder incorporated into it.

#### METHODS OF BRUSHING TEETH

I teach two methods of brushing teeth; the first of which is the rotary motion. With this method all the buccal and labial surfaces of both lower and upper teeth may be brushed at one time in the following manner:—with muscles of the cheeks relaxed and the upper and lower teeth almost touching, place the brush well back in the mouth with the ends of the bristles resting against the upper gums, then with a downward motion bring the brush well down onto the lower gums. moving it forward and then upward to its original position, thus completing the circle. By repeating this combined motion briskly, the brush is gradually moved forward in the mouth until the canine is reached. Remove the brush and in the same way brush anterior teeth. Then place in same manner well back on left side of mouth and proceed as on right side. The lingual surfaces of the teeth should be brushed with a rotary motion, so as to work the bristles of the brush well in between the teeth. The occlusal surfaces should be brushed with a forward and back and lateral motion. By this method the teeth are well cleansed and the gums are stimulated in the same manner that they would be by coarse foods passing over them. However, I would not recommend this way of brushing if the gums had receded and the inter-dental spaces were not filled with gum tissue. The second method which I consider the better of the two, is as follows:- For the upper six anterior teeth, place the brush with the back upward against the upper lip and with sides of the bristles resting against the labial surfaces of the anterior teeth. Turn the back of the brush outward so that bristles sweep upward until the sides of them come in contact with the gums. This only necessitates about a one-quarter turn. Then with a slow forward and back motion insinuate the bristles between the teeth and into the inter-dental spaces. Never allow the ends of the bristles to come in contact with the gums. Remove the brush from this position and place with back up as before, with the sides of the bristles against the canine and bicuspids. Turn back of brush one-quarter turn outward and follow with a backward and forward motion. Remove brush again and place in same manner over the molars, brushing them in the same way. Brushing the teeth in this manner will necessitate five positions of the brush for the labial and buccal surfaces of upper and five for the lower. To brush the lingual surfaces, upper and lower, only the end of the brush is used and the back should be placed upward on the upper and downward on the lower, giving it a quarter turn, working the bristles on the end of the brush, in between the teeth, using a forward and backward motion. Occlusal surfaces should be brushed with a forward and back motion. This is what our good friend Dr. Hartzell calls "learning to shimmy with the tooth brush."

After the student has brushed the teeth thoroughly in this manner, they are again stained to disclose any placques that may not have been removed, and if any are present, they must be brushed away. Once the student learns how to properly brush the teeth in this manner and how to teach his patient to brush them, he has laid the foundation for preventive dentistry.

### Instruments

The instruments to be used for the removal of deposits around the teeth should be few in number and well selected; so that every surface of each tooth may be reached even below the free margins of the gums; for it is at this point, where the greatest care should be exercised to remove any slight deposits that may be found between the teeth and covered by the inter-dental gum tissue. I have on exhibit here a set of instruments which I have designed for this purpose and in my hands they are superior to any I have been able to find in the market. After the student has mastered the technic of how to brush the teeth he is then taught instrumentation. The first point that should be impressed upon his mind is that no matter how clean the teeth of his patient may be nor how healthy the gums may look, he must go carefully around each tooth with the instruments so that to be sure there are no small pieces of tartar left under the gums. If such accumulations are allowed to remain, irritation results and soon an infection sets in. He should be given to understand that this is where the dental profession of today has fallen down. They only remove the calculus that can be seen and leave the small pieces which later on cause inflammation which is followed by supperation of the gums and pyorrhea.

The methods suggested in Fones' book on dental hygiene are well adapted for teaching instrumentation and I follow them. It is necessary to begin at some definite point and follow out a system so that the work, as it progresses may be properly charted and taken up again at some future time.

I shall not attempt to suggest any method for examining the mouth and teeth but to say that it should be done very carefully so that not only all cavities and missing teeth are recorded, but also lack of contact, flat contact points, rough edges of fillings, or crowns that irritate the gums, and various pathological conditions which may be found.

After the student has learned the proper use of the prophylaxis instruments, he is then given a case of pyorrhea to treat. It is at this time that I begin my lectures on the diseases of the supporting structures of the teeth. To my knowledge there has never been a correct classification of the diseases of the supporting structures of the teeth, and while it may be out of place for me to suggest such a classification at this time, I am taking the liberty to do so with the thought in mind that perhaps this body rather than any other might give it some consideration.

Dental nomenclature needs to be standardized, especially that which pertains to the investing tissues of the teeth. The classification I am submitting to you has been gone over carefully by Dr. Ralph Hamilton, who is professor of bacteriology and pathology at Georgetown University, and he has assured me that each of these terms is comprehensive, conveying to the mind of the medical practitioner a definite pathological condition.

Gingivae

Acute gingivitis.
Chronic gingivitis.
Acute suppurative gingivitis.
Chronic suppurative gingivitis.
Hypertrophic gingivitis.
Intestitial gingivitis.
Vincentis gingivitis.

Pericementum

Acute pericementitis.
Chronic pericementitis.
Gouty pericementitis.
Phagedenic pericementitis.
Pericemental abscess pericementitis.

Alveolus

Acute alveolitis.
Chronic alveolitis.
Acute suppurative alveolitis.
Chronic suppurative alveolitis.
Rarefying alveolitis.
Condensing alveolitis.
Alveolar atrophy.
Alveolar abscess.

Perhaps this classification may not meet with your approval. I would be very much surprised if it did; but I intend to use it in my lectures and teach it in the infirmary, so that every student will be able to recognize any one of these diseases.

The senior students only are required to treat cases of pyorchea (suppurative alveolitis). Each must carry at least one case through to completion, under supervision of the demenstrators. To do this, it will be necessary for him to have a set of sub-gingival planes, in order that he may be able to plane the surfaces of the roots to the full depths of the pockets. The instruments I recommend for this work may be seen in my exhibit. They are selected with the idea in mind that all surfaces of any tooth root may be reached. In teaching the technic of pyorrhea treatment, I never allow the student to give the patient any instruction in the care of his mouth until the deposits have all been removed and the teeth polished. My object is this: - you can do better work with your instruments if the gums are soft and flabby as they are before treatment is begun. Instrumentation is too difficult if the gums are tense and hard as they will be if the teeth are polished first and the patient given instruction how to brush them.

A definite technic should be followed out, for instance; an upper central incisor, plane the labial surface of root first, then the mesial, lingual and distal. Care should be taken not to let the instrument twist to one side or the other, for if it does a sharp groove will be cut in the cementum. The stroke should be delicate but firm and continued until the root sur-

face is perfectly smooth. The technic of root surgery is much more difficult than the preparation of a cavity or any other operation a dentist is called upon to do.

After all deposits have been thoroughly removed from the teeth by use of instruments they should then be polished. No roughened surface should ever be allowed to remain on any tooth, for food will lodge on it and if caries does not set in an inflammation of the gum will result.

For polishing the teeth the student should have an engine, suitable rubber cups mounted on mandrils, disk shaped brush wheels, moose hide wheels, orange wood sticks, a hand porte polisher and wooden polishing points. Perhaps the best thing to use as a polishing powder is flour or pumice. This should be mixed into a creamy paste with dioxygen or peroxide hydrogen. The dioxygen has a two-fold purpose; it assists in removing the stains on the teeth and prevents the pumice from flying while using the engine. The engine with the rubber cups is used to polish all accessible surfaces of the teeth and also to polish with the disk shaped brush wheel the occlusal surfaces. The orange wood sticks sharpened properly are used to polish the mesial and distal surfaces from the labial side and the wooden points in the porte polisher are used to polish the mesial and distal surfaces on the buccal and lingual sides. The straight orange wood sticks may be dispensed with and the porte polisher used for polishing the mesial and distal surfaces of all the teeth. The surfaces just above the contact points that cannot be reached with the porte polisher should be polished with waxed silk tape in which some of the polishing paste has been incorporated. Sometimes the contact is so close that the silk will break or cut through and if this be the case strips cut from the soft steel which is used for matrices may be used by placing the strip between the teeth and putting a little of the polishing paste on each side of it, then by working the strip backward and forward the roughened surfaces may be easily polished. After polishing the teeth in this manner it is sometimes desirable to produce a high, lustrous polish. This may be done by the use of moose hide disks and oxide of tin or precipitated chalk used as a polishing powder.

## Instructions to Patient

A patient should never be dismissed from the office until he has demonstrated that he can use his tooth brush and silk tape properly. This is where the dental profession fails again. I wonder just how many dentists do really teach their patients how to brush their teeth?

The teeth should be brushed five times a day. The first thing in the morning use normal salt solution; one-half teaspoon of salt to a glass full of water; wet brush in salt solution and brush labial and buccal surfaces of the teeth first, next the lingual surfaces and last the occlusal, always keeping the brush wet with the solution. Then rinse the mouth thoroughly with the remainder of the salt solution. After each meal brush with tooth paste or powder. Before retiring the teeth should be thoroughly brushed, using paste or powder, then the silk tape should be used and finally the gums should be massaged with the finger, dipping it in salt solution and the mouth rinsed with the remainder of the salt solution. He should be requested to visit his dentist at least twice a year and the fact should be driven home that his health depends largely on the condition of his mouth.

This is a subject that is near and dear to my heart; because for the past four years my practice has been limited to pyorrhea, prophylaxis and diagnosis. When I see the mouths of patients who have been coming to me for treatment for from five or ten years and find not a single cavity has developed, nor with the slightest gingival disturbance, I feel that I have surely done something for mankind. There is not a week goes by but that some patient comes to me in trouble saving he has faithfully visited his dentist twice a year and vet, under the very eyes of that dentist, diseased conditions of the gums have developed and caries has not been checked. How long are we going to go on in this way? Will the day ever come when our profession will look for something in the mouth besides a cavity to be filled; a tooth to be extracted or teeth to be replaced? I hope so, and I feel that this meeting we are holding here in Montreal is the beginning of a new era in dentistry.

# What the Student Should be Taught that He May be Prepared to Prevent Dental Caries From a Therapeutic Standpoint

U. G. Rickert, D.D.S., Ann Arbor, Mich.

Read before the Institute of Dental Teachers, Montreal, January, 1922.

Many of the dental remedies described in the ancient medical literature of the Egyptians, Romans, Greeks and others seem to have been administered for the control of dental caries and are only of historical interest. A study of the dental preparations then in use and the mechanical operations then practiced, while crude, were fundamentally not unlike those in practice at the present time. In view of the general prevalence of dental caries it becomes evident that past and to a certain extent present methods have failed to solve the problem.

With the advance of modern science numerous investigators recognized the importance of first establishing definitely the causes of dental caries, then by more rational therapeutics, studying the management of the problem. It is true that Miller demonstrated the immediate possible chemical breakdown of the tooth tissue but no one has as vet offered a satisfactory explanation as to the variations of relative susceptibility and immunity. Until some one explains why patients may retain normal teeth in the filthiest of mouths and others lose them with the most favorable mouth hygiene, the therapeutics for the control of caries will be more or less of an experimental procedure. Until some one supplies the necessary information as to the fundamental causes of dental caries, instruction in dental therapeutics will be largely a teaching of reparative measures. In our opinion the student should be impressed with the importance of first establishing the cause of any condition before deciding the therapeutic measures to be used. The problem under consideration is no exception to the rule. He should be further impressed with the fact that while the etiology of dental caries is still somewhat obscure, and the remedies largely mechanical restoration, the problem is not a hopeless one but one that presents an interesting field for valuable research.

If our teaching of this phase of therapeutics were to be limited to those drugs which have been subjected to clinical tests and have proved to be of practical value, only a very few drugs would qualify. It must be evident that with the recent enormous advancement of dental education it is not enough to teach only the practical and well established facts, but the teacher must stimulate in the student an interest for study in undeveloped fields. We would not have you infer that the following discussion will deal only with the most deserving information at hand, but it is intended to illustrate our notion of what the general trend of education as concerns this subject should be.

The majority of dental operations are either a direct or indirect attempt at control of caries and would, strictly speaking, be included in this report but by agreement it was decided to divide the subject so that the mechanical operative procedures would be presented by others. No mention of the various grits used in oral prophylaxis will be undertaken in this report. We will also avoid a discussion of the various filling materials and their indications; that also will be considered by others. Where drugs or other agents have been incorporated in filling materials, mouth washes, dentifrices, etc., for their antiseptic or other therapeutic properties, these are to be included in this paper.

With the exception of certain dietitians, the majority of investigators at the present time are of the opinion that causes of dental caries are to be found in the environment rather than in the physical constitution of the tooth. From a careful clinical and experimental study of the problem covering a number of years we have come to the conclusion that future therapeutics will have to consider both factors. It has been our observation that the physical constitution of the tooth may frequently be so well developed as to resist for a time a most unfavorable environment. The reverse is likewise true that teeth less well organized may for years remain in a favorable environment without becoming carious. We will first consider the management of the environment as presented by recent workers in the field. We will then consider the limited information we have for the development of the more perfect tooth structure. The last division will be a review of the several drugs which have won a place in the management of dental caries.

When Miller demonstrated that the enamel is first broken down by weak organic acids, principally lactic, formed by the action of certain micro-organisms, the solution of the problem appeared to be a bacteriological one. Miller and others at once recognized the possibility of either changing the oral flora or inhibiting the development of mouth bacteria by the use of antiseptics. After a great deal of experimental work, he found that the micro-organisms of the mouth may be reduced enormously by the use of antiseptics. Bunting and others have since verified these results. All have observed, however, that the mouth offers such an extremely favorable field for various strains of bacteria, and that with the removal of the antiseptic the organisms appear again on the increase at a surprising rate and that it is only a matter of minutes until the original number of bacteria are again present in the saliva.

Up to date, no one has been wholly successful in the control of dental caries by the use of antiseptics.

Attempts at proving a specific organism as the cause of dental caries have failed. Numerous strains or combined strains that have the capacity of forming lactic acid or other organic acids from carbo-hydrates in the saliva, seem to be present in all mouths. There are workers (Goadby) who claim to have been successful in introducing certain micro-organisms which have the capacity of increasing the alkaline principles of the saliva. If this may be accomplished without other deleterious results no better illustration of rational therapeutics could be found in medical science. Such inhibition could be made tremendously more permanent than could be expected from the antiseptic and antiacids of mouth washes. Further study in this direction should be encouraged.

Many attempts have been made to prove that the acid principles of the salivas of susceptible patients exceed the alkaline principles. Personally we would hesitate accepting this view in full for there are apparent exceptions. The reaction of salivas as determined by chemical indicators has been open to criticism. The gas chain method, or the measurement of II-ion concentration of solutions approaching neutrality are more exact. That some salivas are either devoid of essential principles or on the other hand possess deleterious constituents to the enamel structure must be admitted. There is also sufficient evidence to believe that teeth in the mouths of patients with suppressed flow of salivas and other deficiencies are more susceptible to the destructive processes set up by acid fermentation. It is the acceptance of this view coupled with attempts at increased solubility of musin plaque that has suggested the uses of alkaline mouth

washes. It appears that the judicious use of certain of the less soluble antiacids coupled with proper oral prophylaxis has an inhibiting influence on the progress of caries. Because of its gelatinous nature, milk of magnesia when applied to the teeth at night has held the most prominent place among the antiacids. Incorporated in certain dentifrices prepared and precipitated chalk have been used both as a grit and as an antiacid. Where both a mild antiseptic and alkaline reaction are desired, magnesium dioxide or sodium diborate have proved to be serviceable. Lime water and sodium bicarbonate are less serviceable and should only be used for the neutralization of temporary acidity. Pickerill, Gies, Wallace and others have demonstrated that the reaction of the saliva is modified by the type of stimulant; for example, an acid stimulant is followed with an increased flow and a saliva of greater alkalinity as determined by chemical indicators.

If it is true that the reaction of the saliva remains more alkaline for some time after such stimulation, this would recommend its use to a more general application. Acid diets, such as the citrous, fruits, apples, etc., have been shown to stimulate salivas of greater alkalinity.

In our own studies of the variations of chemical composition of different types of salivas there is but one factor that we have observed which is a constant factor in susceptibility to caries. We have examined about four hundred salivas for calcium and find that its content in the immune is usually two and three times the amount found in the susceptible. By immunity to caries we refer to patients twenty-five or more years of age, frequently found with no history of caries. They will tell you that certain of their ancestors lived to old age without loss of teeth, etc. By susceptibility we refer to cases where there is every evidence of active caries. Most women become susceptible during pregnancy. The amount decreases until often a few days before delivery there is but a trace of calcium in the saliva. There are varying amounts of calcium from the lowest to the highest findings as one would expect in patients between the two extremes, but the point of interest is the uniformity of results with cases of known immunity or susceptibility. Whether this significant factor just runs parallel with dental states without influencing such states has not yet been satisfactorily answered. All our attempts at feeding calcium salts such as calcium lactate have failed to increase the amounts found in salivas. We later demonstrated the permeability of the enamel when set up as a permeable membrane. We are satisfied that the calcium content in the saliva has a direct bearing on the permeability of the enamel but admit that conclusive proof is not as yet established. Dr. F. W. Broderick claims to have been successful in increasing the calcium content of the saliva by pluriglandular therapy. He maintains that in cases where the physical structure is not destroyed, partially decalcified enamel will be restored to normal where the ionized calcium is increased in the saliva. We too have been successful in producing this change experimentally in laboratory teeth. If Dr. Broderick is right that the desired floating calcium can be controlled by endocrine therapy without injurious results, which remains to be proved, dentistry will have made a tremendous advance.

We should include here what is known concerning diet for the maintenance of a proper calcium balance but that will be discussed by Dr. Howe. We have no doubt that diet will soon be demonstrated to play an important part in the management of dental caries. We will be interested in Dr. Howe's report because we expect to get the last word as to the progress made in this direction.

The student should understand that the day of nostrums is past, and that patients susceptible to caries often ask the dentist: "What dentifrice or what mouth washes should be used?" Such sweeping claims are made by makers of some of these preparations that it is important that the student should be enlightened as to their therapeutic value. Outside of the grits, which will be discussed by Dr. Taylor, it is our opinion that the most important elements of these preparations are their flavoring agents. As an example, one widely advertised dentifrice makes great claims for the pepsin incorporated in it on the ground that it digests the mucinous plagues. Experiments in our laboratory developed the fact that the shortest time we were able to digest a twenty-four hour plaque with the liquid portion of the dentifrice was thirty-eight minutes. When one considers the limited time the paste in the mouth has to act, it becomes evident that the manufacturers' claims are splendid advertising features but of very limited practical value. In our opinion there are certain indications for this dentifrice which are not dependent on the pepsin, however, but on the calcium-phosphate used as an abrasive. A very able investigation of this dentifrice was reported by Dr. Gies.

Unfounded therapeutic value has been attributed to potassium-chlorate. A number of preparations incorporating it are on the market but the accompanying literature fails to explain that its principal indication is in the treatment of mercurial stomatitis. The toxic properties of potassium chlorate should discredit its general use.

What has been said about dentifrices generally applies to mouth washes. Certain mouth washes may include antiacids and antiseptics, but none are known to the writer that per se noticeably influence dental caries.

At the present time we know of but one medicament that may be depended upon to inhibit dental caries. Nearly a century ago it was observed that silver nitrate applied to carious teeth arrests the disease. It has since been extensively used for treatment of both temporary and permanent teeth. The ammonical solutions as first suggested by Dr. Howe are more readily reduced and are applicable in most cases where the nitrate was formerly used. Either of these solutions practically stops the progress of caries. It has made possible the arrest of caries in inaccessible areas of posterior teeth. Large cavities of molars that are sensitive may be treated with silver solutions and reduced with suitable agents without removing every particle of affected dentin. The more recent pulp cappings usually include silver for this purpose.

If it were not for the serious discoloration attending silver treatments the problem of managing dental caries could be controlled to a remarkable degree. In fact, a number of workers have reduced silver over perfect teeth for prophylactic measures. Experimentally this can be accomplished with favorable results. We have carried out the following experiment: Two unerupted upper third molars taken from the same patient were used. Both were set up as permeable membranes, both were observed to act as such membranes, the one was then immersed in a dilute silver solution and placed in a dark room for forty-eight hours and then subjected to direct sunlight. The enamel in the tooth thus treated became clogged with reduced silver and refused to act as a permeable membrane. Osmosis ceased. We then placed both teeth in weak organic acids and were impressed with the increased resistance of the enamel treated with silver. This is not due alone to the approximate insolubility of the silver but also to the impossibility of the acids penetrating or diffusing through the tooth tissue. If the time ever comes when jet black teeth

will be looked upon as beauty spots, a new era will have dawned on dentistry. It is indeed unfortunate that there are no other known substances that may be thrown out of solution as easily and become as insoluble as silver without the objectionable discoloration. No lengthy discussion is necessary. It is a common observation that the two tissues, the cementum and the enamel, which must be destroyed before extensive caries are possible, may be protected almost indefinitely by reduced silver.

We are not quite certain whether filling materials are to be discussed by Dr. Bryan or not, but it should be said here that, next to silver, copper has won a place in the control of carics. It is a common observation that copper in both the alloys and cements introduces added protective powers. Not all of these are free from objectionable discoloration, however, and should be judiciously used.

Now in conclusion it may be said that this discussion has been too theoretical, certain valuable information having a bearing on the subject may have been omitted. Unjustified recognition may have been given to certain unconfirmed research work. It may be asked: "Why burden the student with so much theory?" Our answer: It is amazing in consideration of the common prevalence of dental caries that with several thousand years of effort for its control there has been so little progress. It must be admitted that the modern hygienist is approaching the problem from the right end. Most gratifying results may be and have been obtained in this field, but that there are certain fundamental causes beyond the control of the hygienist which still remain to be solved must also be admitted. We realize that an enormous amount of study will be required to clarify the present obscure causes of dental caries. With the ever changing living conditions of the human race it is quite possible that the fundamental cause is a shifting one, making treatment the more difficult. The watchword in both medicine and dentistry of the day is prevention. In this day of science full knowledge as to the pathology and cause of a disease offers the only basis for rational therapeutics. If our teaching is governed only by the demands of reparative dentistry or the necessary preparation for the State Boards of the day, who will train the dental teachers and research workers of tomorrow? Acknowledging the fact that much of the dental research of the past decade has been of a pseudo scientific nature. It is likewise true that

the profession has made greater progress during this period of extensive research than in any other equal period of its history. If the present rapid advance of the status of our profession is to continue, it is our opinion that the instruction of the day must encourage and develop research workers and dental teachers for the future for as Dr. Hopewell Smith very ably put it as much as six years ago: "In spite of all the writings of some of the ablest men of the dental profession, our knowledge is today still very incomplete. Historically the question is of great interest, not so much from the mistakes made, the false doctrines promulgated, the erroneous hypotheses suggested, the ludicrous statements formulated, as from the amount of truth discovered in the struggle for the clarification of the dim uncertainties of the problem."

The discussion on the three foregoing papers will be published in the October issue of the Journal.

# Diseases and Their Relation to Focal Infections

Dr. Herbert A. Potts, Chicago.

The above subject implies a premise and we should be careful to choose a proper one. To put it in more comprehensive words, I would say,—What should we teach in order that the dental student may better comprehend the relations of foci infection to general disease?

It would not be difficult to imagine a curriculum which required the dental student to attend a few lectures given by a physician, who, in reviewing general diseases, recited the definition, etiology, pathology, diagnosis, treatment and prognosis, concluding with the statement that they may be caused by some focus of infection.

As the result of such a course the majority of students would have learned nothing, and furthermore, would have been bewildered by the statement that these diseases may be caused by a particular focus of infection; Medicine is full of things which may happen, but in a goodly number of cases do not happen.

The sound comprehension of the underlying principles of these processes enables one to be on guard against the unusual cases and fortifies one in the treatment, which may act as a prophylactic measure as well.

Dentistry is a branch of the healing art and we should

bend our efforts to keep it where it belongs and further its development close to the parent stem lest it go astray.

Being a branch of the healing art, the foundations of that art must be taught viz., anatomy, physiology, pathology, physical diagnosis, and of more importance, the cultivation of an atmosphere of physical disease, in which the dental student must live as does the student of medicine, who, during his whole course hears nothing but disease and pathology, morning, noon and night.

Dental students should have bedside instructions at hospitals and in operating rooms where they can see the application of the principles of asepsis, hygiene and the management of disease, especially the communicable diseases, which proper dentistry can do so much to control.

Dentistry in the past has placed great stress upon replacement dentures, restorations and artistic creations, at the expense of the fundamentals, which support the healing art and which make it possible to avoid disease, cure it and even by abstaining from some highly mechanical and artistic appliance, prevent the development of disease, which would surely occur in consequence of its having been placed.

Teachers of dentistry should be in close contact with medical men and encourage consultation with them in order that they may impart the same desire for consultation in their students.

Too few dentists today ever know of the cases of illness directly due to their lack of knowledge or neglect, because when their patient falls ill, he consults the physician and not the dentist.

Witness a case of carcinoma of the jaw and anterior piller, which was treated by a dentist for three months as a case of pyorrhea, and a case of stone in Wharton's duct with cellulitis, treated by a dentist as cerical adenitis, thought to be due to a chronic apical infection.

No one mind can comprehend the whole field of medicine. Dentistry has in addition another technical and extensive field, therefore it is very necessary that the dentist call to aid the medical man who is better equipped to care for the general economy.

It is not to be expected that the dentist be a trained diagnostitian, but he should know the field of his own endeavors and if the lesions which he sees or the results of his operations extend into the realms of the neurologist, surgeon.

or internist, he should, from his knowledge of the fundamentals which are common to both professions, not delay in referring the patient to the proper man or call him in consultation.

It is unfortunate that the term focal infection should have gained such prominence in our literature. Many diseases begin as a single focus usually at the port of entry, from which localized area the disease becomes general as for example, syphilis.

We are apt to be led away from the pathogenesis by the term focal infection, which implies a distinct entity rather than a localized disease and which may give rise to disease in other parts of the body.

In our oral surgery clinic we have had for several years the services of a trained pathologist who takes material from the hands of the operator immediately to the laboratory and is able in many instances to deliver at least a preliminary report, before the patient leaves the operating room. By this means the patient is better served, the students are impressed with the clinical picture as described by the operator and the correlation existing between the patient, his disease and the pathology, as explained by the pathologist. All this time the mental and visual picture is still distinctly before the student.

It has been my habit to exhibit fresh pathological specimens obtained in my clinic at the county hospital to the dental students, reviewing the clinical history and bearing of the diseased tissues upon the general condition of the patient, in fact giving the dental students the same instructions which I give to the medical students.

The collection of material from our clinic affords the opportunity for study of special pathology and when utilized while the patient is still under the care of the student he, the student, is more interested and realizes that pathology is not something remote from every day practice.

In order that the student may comprehend this applied pathology, he is well grounded in histology and as many specimens, which he studies, are obtained from patients in our clinic they are of greater interest to him.

Having a pathologist in attendance at our oral surgery clinic has enabled us to pursue special studies. In several hundred blood examinations it was determined that there exists no constant or reliable relation between chronic apical infections and leucocy tosis.

In our course on Principles of Medicine which includes physical diagnosis, the effort is made to impress the dental student with the existing relation between oral diseases and the general diseases which we have reason to believe may have etiological factors in common such as the anemias, endocarditis, iritis, etc., and to demonstrate the clinical findings and pathogenesis to them.

The necessity for teaching medical students some of the fundamentals of dental medicine and dental surgery is just as great as is the necessity of teaching dental students the fundamentals of medicine and it was a source of gratification to me to have the Northwestern University Medical School, three years ago, make the course of oral surgery obligatory, as for the previous two years it had been only elective. This will in itself promulgate a closer fraternalism between dentist and physician.

I should say in answer to the question, "What should a demal student be taught in reference to general diseases and their relation to focal infection?"

- 1. That he be taught microscopical and gross pathology, bacteriology and physical diagnosis of general disease, which would include the focus of infection and connect it up with general disease.
- 2. He should be taught to think for himself, and having a knowledge of the fundamentals, he should be taught to reason from cause to effect thereby grasping the whole picture, rather than the "one small focus."
- 3. The student should have created about him an atmosphere of pathology and disease, he should be shown the living pathology and have continually before him the subsequent health of his patient.
- 4. He should be taught that it will frequently be greatly to his credit to say that he does not know, but he will find some one who does.
- 5. Lastly he should be taught to seek the society of his medical confreres, call them in consultation and in consequence of it, he himself will be called as a consultant, if he has properly prepared himself.

# Dr. Robert Arthur's Method of Preventing Tooth Decay

William H. Trueman, D.D.S., Philadelphia, Pa.

The reference in the June number 1922 of The Dominion Dental Journal to Dr. Robert Arthur's method of preventing tooth decay in cases where it is likely to occur, by forming between the teeth self cleansing spaces and thereby destroying their normal close contact, seems to prompt a short resume of this long forgotten method that failed so dismally.

Having entered the dental profession more than three score of years ago, and having seen cases of tooth separation by a method in vogue long before Dr. Arthur's time, the occasional good results of which prompted him to devise a modification of it, and having heard Dr. Arthur's address explaining the changes made at a meeting of the Odontographic Society of Philadelphia, during which, with the aid of models and diagrams he explained the reason for, and his method of making and shaping the self cleansing spaces he advocated. I may, perhaps, be permitted to recall the method itself, its plausible, promising benefits, and the why and wherefore it was discarded so promptly, and is now so nearly forgotten.

Dr. Horace H. Hayden, of Baltimore, Md., with whom Dr. Arthur was quite intimate, practiced this old method, dating from the time of Fauchard, of separating teeth in close contact by making with a flat file a space between them not quite to the gum line, leaving a shoulder at this point to prevent the space closing. This was the weak point. It was difficult to keep clean, and the shoulder, frequently left with a sharp angle was liable to give way by fracture or decay, soon resulting in serious injury. Careful operators tried to avoid this by rounding this angle, leaving the shoulder stronger, and making the space less conspicuous when between the front teeth. This, however, with the tools then in use was a difficult matter, as was also making the sides of the space smooth and polished. The efficient polishing strips of the present day were not then in use. Notwithstanding this, in many cases these spaces remained for years seemingly decay preventative.

It is quite possible that decay in some of these successful cases would not have occurred if the filing had not been done. This did not escape Dr. Arthur's observation, and his suggestions when to file and when not to file is a part of his method of decay prevention, as we shall presently see.

It was these successful cases operated upon by Dr. Hayden for patients who came under his care after the death of Dr. Hayden, that turned his attention to the possibilities offered by this old method, and led to modifications seeking to avoid its defects.

The new method seems to have been first presented to the profession when at a meeting of the Dental Society of the State of Maryland, Dr. Arthur offered for discussion these five propositions: (Dental Cosmos, vol. 10, December. 1868, page 652).

1st. That caries will attack the proximate surfaces of all the teeth except the inferior incisors, of the great majority of the better classes in the United States at the present day.

When caries of the superior incisors occurs, on the proximate surfaces, previous to the twelfth year, its occurrence, sooner or later, on the same surfaces of all the teeth, except the inferior incisors, is almost certain. In the greater number of such cases the caries will show itself before the twenty-fifth year.

2nd. That caries is not liable to occur, at the points indicated, unless the teeth are in contact.

3rd. That an artificial, permanent separation of the teeth will arrest superficial caries, or prevent its occurrence, if the attack has not actually begun.

4th. That it is a popular fallacy to suppose that caries necessarily follows the removal of the enamel.

5th. That the most efficient means of preserving the teeth is to anticipate the attack of caries by separating them, when it is ascertained that caries is likely to occur on the proximate surfaces.

After these propositions were presented, and discussion had thereon, inasmuch as they were new and radical, and moreover very important, it was decided to lay them over for further study and discussion.

It was not new matter to Dr. Arthur, for more than twenty years it had been his constant study, and had been subjected to repeated tests, and was not brought before the profession until he was thoroughly convinced he was on safe ground. Notwithstanding that the profession seemed to soon find its weak points, and was not slow or timid in making them known, Dr. Arthur continued to practice and advocate artificial separation as set forth in these five propositions until the end of his career.

He repeatedly appeared before large dental gatherings to explain and advocate his views. His earnestness attracted many followers, in a few years, however, they became deserters. Contouring and restoration of masticating surfaces proved more satisfactory to dentists and their patients, and has so remained.

The main point brought out in discussions was that removal of enamel predisposed the teeth to decay. This, of itself, we now recognize as an error. Much of the opposition that later developed may be traced to the thoughtless and unskilful work of enthusiasts who failed to appreciate its limitations. Teeth were unmercifully mutilated, indeed, until the dental engine came into general use with its grindstones and polishing disks, (introduced by Dr. Arthur) it required more skill and patience than most dental practitioners possess to properly make these spaces. The files previously in use, especially those made for use on the posterior teeth, were very inefficient and inconvenient.

To anyone who feels inclined to adopt this practice, I would strongly urge a careful study of Dr. Arthur's book, "Treatment and Prevention of Decay of the Teeth," published at Philadelphia, 1871, and make sure they understand the double V spaces it calls for. This special shape was designed to be self cleansing, and to be positively permanent. In practice it too often proved difficult to keep clean, the food packing into this space caused recession of the intertissial gum tissue, making an annoying, retentive space. The loss of masticating surface interfered seriously with that function, and moreover, it was not always permanent. I have seen these spaces after a few years, from wear and tooth movement to so close as to become a constant annoyance. It is well to remember that it is wise to go slow in doing that which cannot be undone.

Be assured that those who took hold of it when first presented to the profession, and were charmed by its promises, later found good and sufficient reasons for discarding it.

There is one point, however, that Dr. Arthur suggested that has value. That is, isolating the incoming teeth by removing from the approximating first teeth (soon to be lost), especially making between the first permanent molar as soon as it has taken its place, and the second premolar sufficient space that its anterior approximal surface shall be thoroughly exposed for cleansing and inspection. This he explains in his book.

# President's Address, Saskatchewan Dental Association

A. P. Salter, D.D.S., L.D.S, Saskatoon, Sask.

It is customary I believe at meetings of societies such as this for the President to prepare and deliver a lengthy address. However, a society so young as ours does not give very much scope for an address of any length. We are just in the formative stage and, so far, have not accomplished enough to review. It is fitting rather to look to the future and plan our work so that we may accomplish something for the good of everyone concerned.

There are a few matters to which I wish to draw your attention. In the first place your Executive has made an endeavor to place the society upon its own feet. In fact it has done so, but whether or not it will be able to walk without assistance remains to be seen. I mean to say that all the clinics and demonstrations are to be given by members of our own society. The only outside assistance we have is from Dr. Webster and Dr. Thornton, and their subjects being special ones call for special knowledge, and when I use the term "outside assistance," I do not wish for a moment to exclude Dr. Webster and Dr. Thornton in any sense. You no doubt will remember that Dr. C. N. Johnson's constant admonition was to use our own members so far as possible, or, in other words, to develop our own talent, as in this and no other way will progress be made. There are a number of members, to some of whom I have spoken, who are inclined to criticise our efforts and who cannot see how any good can come of it. To those I would say that everyone of us can learn something from each other, and the man who thinks that his fellow practitioner cannot teach him something is indeed in a bad way. In some respects I think we can learn more from our men than from one who is brought in especially to lecture to us, for we are closer to them and feel more on their level. We can discuss the matter and criticise and they can see their own mistakes and in that way benefit will accrue to both the demonstrator and the class.

I do not wish you to think that we feel we are going to teach you a lot of things that you do not know. Rather we are trying to help each other develop and in a measure perfect what we already know, so I would ask you to come to the clinics and demonstrations with open minds free from preju-

dice, having in view only the ultimate good of the whole society.

There are some matters of great importance before us this year. Particularly that of the proposed grant from the Government for oral hygiene amongst school children. I would ask every one of you to give it most serious consideration. We must get away from this attitude of self-regard and think more of the good we can do for others. There are many avenues open to professional men to render public service but for many reasons they do not use them. Often it is because it takes too much time. We all know how closely we are tied down to our offices, not having the opportunity to leave someone else in charge while we attend to other matters, as businessmen have. The field of public service is so large that often a man gets lost looking for something to do, with the result that he does nothing. In this particular case, while the field is large, it is entirely our own. We know every inch of it, we know what tremendous importance it will be to future generations. Why then hesitate to make use of the power that is in our hands? Those of you who were fortunate enough to hear the address of Dr. Harry Thompson, Head of the Dental Research Department of the Toronto University, cannot fail to be impressed by the magnitude of the work that is being done and the benefit it will bring to the profession and consequently to the public generally. It is to be hoped that every dentist in the Province will give the association his support and also avail himself of the assistance offered by the Research Department.

During the past year death has removed from amongst us one of the pioneer dentists of the Province in the person of Dr. W. H. Falloon. Dr. Falloon came here in 1906 and after practicing until 1911 went to British Columbia. Unfortunately he met with financial reverses and returned to practice in Saskatoon. In 1920 he was seized with partial paralysis and, although able to do some work, never fully recovered and died in January 1922. He was a fine workman and a most genial and open-hearted man. Dr. F. K. Switzer, our former President, feeling the call of a more "salubrious" climate, has removed to Los Angeles. May good fortune go with him.

Now, gentlemen, I said the address would be short and I hope you have found it so. We will proceed with the business of the Convention.

I thank you.

# Report of Committee on Dental Nomenclature

L. P. Anthony, D.D.S., Philadelphia, Pa., Chairman.

Presented to the House of Delegates, National Association, Los Angeles. Cal., July 17-21, 1922.

YOUR committee begs to report as follows: The purpose of the nomenclature of dentistry as of any profession is to provide the means for the intelligible interchange of ideas to the end that its development and growth may progress and keep pace with that of the other professions.

Through its literature each profession becomes acquainted with the state of development of its sister professions and thereby is judged as to its intellectual status and the verity of its accomplishments. The scientific status, the exactness of knowledge, the cultural developments and the mental habits of a profession are distinctly reflected in its literature, and the retarding influence of insufficient and defective vehicles of expression must be removed if it is to keep pace with the other learned professions.

\*This report will be published in the *Transactions of the American Dental Association*, held in Los Angeles, California, 1922. These may be purchased at \$1.00 each through the office of the American Dental Association, 5 N. Wabash Avenue, Chicago, Illinois.

### List of Words Recommended.

alveolectomy (L. alveolus + Gr. ektone excision). Excision of a portion of the alveolar process.

alveolotomy (L. alveolus, (process) + Gr. tome, cut). Incision into the alveolus of a tooth, as for locating the end of a root of a tooth.

anesthesia. Preferable to anaestheisa.

apiccectomy (L. apex gen. apices, the end (of a tooth root) + Gr. ektme, excision). The operation of excising the end of the root of a tooth. To be used in preference to apectomy; apiectomy; apicectomy.

artificial denture. Preferable to plate.

cuspid. In preference to canine.

cementum. To be used in preference to cement.

conduction (adj.). To be used in preference to conductive, as in conduction anesthesia.

deciduous (adj) To be used as designating the teeth of the first dentition.
in preference to the terms "temporary," "milk" or "baby."

dentural (adj) (L. dens, dentis, tooth). Relating to the denture.

.. first molar. To be used in preference to "six-year molar," "sixth-year molar."

mandible (L. mandibula from mandere, to chew). The lower jaw.

maxilla, pl. maxillae (L. maxilla, jaw). The upper jaw.

morsal and occlusal (adj). To be used synonymously as relating to the masticating surfaces of the bicuspid and molar teeth.

- centric occlusion. To be used to express the relation of the inclined planes of the teeth when the jaws are closed in the position of rest.
- eccentric occlusion. To be used to express the relation of the inclined planes of the teeth in the excursive movements of the mandible.
- mesial and distal. These terms as used today have been objected to as not being in conformity with anatomical nomenclature, where they are used to indicate the relation to the median line of the body. They have, however, become so fixed in dental nomenclature that we do not suggest any change.
- pathodontia (Gr. pathos, disease \(\psi\) odous, tooth). That branch of dentistry which has for its purpose the study and treatment of diseases of the teeth.
- pathology (Gr. pathos, disease + logos treatise). That branch of medical science which treats of morbid conditions their causes, symptoms, etc. This term is being loosely used to indicate a disease or pathologic condition, which is confusing, unnecessary and undesirable.
- pediadontia (Gr. pais, paidos, child \_ odous, tooth). That branch of dentistry which has for its purpose the study and treatment of children's teeth and mouth conditions.
- periodontia (Gr. peri, around, + odous, tooth). That branch of dentistry which has for its purpose the study and treatment of diseases occurring around the teeth and their roots.
- periodontal (Gr. peri, around, + odous, tooth). Relating to the alveolodental ligament. To be used in preference to peridental.
- periodentoclasia (Gr. peri, around, + odous, tooth, + klassis, breaking [down]). The destructive generation of the tissues about the root of a tooth. Substituted for pyorrhea alveolaris; Riggs' disease; interstitial gingivitis.
- periclasia (Gr. peri, around, \_ klassis, breaking [down]). Used as a shortening for convenience of peridontoclasia. Should be used with
- a qualifying word, as in itself it does not mean anything in particular. pontic (1. pons, pontis, a bridge). (Adj. and noun). A substitute for a natural tooth. Used in preference to dummy.
- bicuspid. In preference to premolar.
- prosthesis (n.) (Gr. pros. to, + tithemi, to place). Preferable to prothesis. (Because of the more definite application of the Greek preposition pros, as compared to pro in this form.)
- prosthetics (n.). Preferable to prothetics. (For same reason as in prosthesis.)
- pulpless tooth. To be used in preference to "dead tooth," "devital tooth," "devitalized tooth." In cases where there is a "vital" pulp in a tooth or a "non-vital" pulp, it should be so designated; e.g., a tooth with a vital pulp, or a tooth with a non-vital pulp.
- radiology (n.) (L. radius, ray + Gr. logos, treatise). The science of radiant energy. To be used as the generic term to indicate radiant energy from whatever source.
- radiogram (n.) (L. radius, ray, \_\_ Gr.. gramma, a writing). The product or tangible result, as the film or the print thereof, of the radiographic process, actuated by radiant energy of whatever source.
- radiograph ((verb) (L. radius, ray. + graphein, to write). The act or process of making a radiogram.
- radiography. The art of making radiograms.
- radiopaque (L. radius, ray,  $\perp$  opacus, shady). Term applied to a substance that is impermeable to the various forms of radiant energy.

radiolucent (L. radius, ray \(\preceq\) lucere, to shine). Term applied to substances that allow the passage of radiant energy light, but offer some resistance.

radioparent (L. radius, ray  $\perp$  parere, to appear). Term applied to substances that freely transmit the light of radiant energy.

roentgen ray. To be used in preference to X-ray, and only where the specific ray is indicated.

roentgenology. The study and use of the Roentgen ray in its application to medicine and dentistry.

roentgenograhy. The art of making roentgenograms.

roentgenogram. The shadow picture produced by the Roentgen ray on a sensitized film, or the print from the film.

roentgenograph (v.) The act of making a roentgenogram.

second molar. To be used in preference to "twelve-year molar," or twelfth-year molar."

third molar. To be used in preference to "wisdom tooth."

Vincent's infection. To be used to express the ulcero-membranous stomatitis caused by Vincent's spirilium and fusi-form Bacillus; in preference to Vincent's angina; the latter being more applicable to the throat infection.

x-ray (n). This word is used indiscriminately as a noun and a verb. It should be used as a verb. The word Roentgen ray is preferable. It should also be used with small x rather than with the capital X if used at all.

penetology. These two words have been suggested, the first to mean odontalysis, the science of radiant energy, and the latter, examination of the teeth. We see no justification for either etymologically or otherwise.

The committee is pleased to state that in the near future there will be available places of accessible record of the activities in the field of dental nomenclature that have not been open to the profession since the passing of Harris' Dental Dictionary. If the present plans mature as proposed there will soon be issued no less than three dictionaries devoted to dentistry, namely, one compiled by Dr. W. B. Dunning, under the auspices of the American Institute of Dental Teachers; one compiled under the direction of Dr. Louis Ottofy, of Chicago, and a third compiled by the chairman of this committee. The committee and the profession can thus feel assured of a permanent continuing record of its activities in the future.

In concluding the report your committee earnestly solicits the co-operation of committees on Nomenclature and of individuals who are actively interested in this subject, to the end that our nomenclature may be as expeditiously as possible enlarged to meet the needs of the profession."

L. Pierce Anthony, Chairman, C. N. Johnson, Otto U. King,

H. E. FRIESELL, H. L. WHEELER,

### DENTAL SOCIETIES

# Dominion Dental Examinations, June, 1922

PASSED IN OPERATIVE DENTISTRY (CLINICAL)

Allen, N.; Bannerman, C. J.; Barber, J. C.; Balfour, G. E.; Berst, M. R.; Allen, N.: Bannerman, C. J.: Barber, J. C.; Balfour, G. E.: Berst, M. R.; Caldbick, L. W.; Cummer, H. H.; Davidson, A. G.; Davidson, H. T.; Dixon, H. W.; Devine, E. W.; Evans, J. D.: Fumerton, A. S.; Graham, J. R; Green, Geo.; Gauthier, J. A.: Hall, H. R.; Heidgerken, G. F.; Hall, W. J.; Hamilton, C. W.; Jackson, W. R.: Joy, Marion: Keith, W. F.: Kerr, W. J.; Keyes, E. C.: Knight, H. N.; Kemp, E. G.; Kemp, F. F.; Lent, F. E.; Legueyer, L. J.: Long, H. J.; Liesmer, H. C.: Magrath, J. L.: Mihaychuk, M.: Mollins, N.: Murdock, E. L.; MacDonald, H. W.; MacKenzie, A. S.: McDonagh, Aileen; McLeod, D. A.; Niebel, E. H.; Netherton, W. J.; Porter, J. F.: Parrott, J. R.; Prestien, G. L.; Rupert, E. A.: Ritchie, J. S.: Rouse, D.: Seale, G. W. H.: Sharon, W. A.: Turner, W. J.; Wright, L. H.; Webb, M. E.; Wilson, M. R.; Whitaker, R. J.; Wilkes, H. F. D.; Yoerger, W. G.; Yack, L. C.

### PASSED IN PROSTHETIC DENTISTRY (CLINICAL)

Allen, N.: Bannerman, C. J.: Barber, J. C.: Balfour, G. E.; Berst, M. R.: Davidson, A. G.; Davidson, H. T.: Dixon, H. W.: Devine, E. W.: Evans, J. D.; Fumerton, A. S.: Graham, J. E.: Green, Geo.: Hall, H. R.: Heidgerken, G. F.; Jackson, W. R.: Joy, Marion: Keith, W. F.: Kerr, W. J.: Keyes, E. C.: Knight, H. N.: Kemp, E. G.; Lent, F. E.: Long, H. J.: Leismer, H. C.: Magrath, M.: Magrath, J. L.: Mihaychuk, M.: Murdock, E. L.: MacDonald, H. W.: Mackenzie A. S.: Neibel, E. H.: Netherton, W. J.: Porter, J. F.: Parrott, J. R.: Prestein, G. L.: Rupert, E. A.: Ritchie, J. S.: Rouse, D.: Robertson, G. A.: Seale, G. W. H.: Stevenson, W. M.: Turner, W. J.: Webb, M. E.: Wilson, M. R.: Whitaker, R. J.: Wilkes, H. F. D.; Yoerger, W. G.

### PASSED IN OPERATIVE DENTISTRY (PAPER)

Allen, N.; Bannerman, C. J.; Barber, J. C.; Caldbick, L. W.; Corbett, F. M.; Cummer, H. H.; Davidson, A. G.; Davidson, H. T.; Dixon, H. W.; Evans, J. D.; Fumerton, A. S.; Graham, J. E.; Green, Geo: Vall, H. R.; Heidgerken, G. F.; Jackson, W. R.; Jarvis, C. R.; Joy, Marion; Keith, W. F.; Keyes, E. C.; Knight, H. N.; Lent, F. E.; Legueyer, L. J.; Long, H. J.; Magrath, M.; Magrath, J. L.; Mihaychuk, M.; Mollins, N.; Murdock, E. L.; MacDonald, H. W.; McConaghy, J. W.; McDonagh, Aileen; McLeod, D. A.; Niebel, E. F.; Nethertor, W. J.; Porter, J. F.; Purdy, C. F. M.; Robertson, G. A.; Rupert, E. A.; Shrapge, G. E.; Snell, A. R. J.; Sutter, S. H.; Seale, G. W. H.; Turner, W. J.; Wagner, G. W.; Webb, M. E.; Wilson, M. R.; Yoerger, W. G.

### PASSED IN PROSTHETIC DENTISTRY AND METALLURGY

Allen, N.: Bannerman, C.J.: Barber, J. C.: Caldbick, L. W.; Corbett, F. M.: Cummer, H. H.: Davidson, A. G.: Davidson, H. T.: Dixon, H. W.: Elkerton, W. C. Evans, J. D.: Fumerton, A. S.; Graham, J. E.; Green, Geo.; Hall, H. R.: Heidgerken, G. F.: Hindson, J. D. W.: Jackson, W. R.: Jarvis, C. R.: Joy, Marion; Keith, W. F.: Keyes, E. C.; Knight, H. N.; Lent, F. E.: Legueyer, L. J.; Long, H. J.; Magrath, M.: Magrath, J. L.: Mihaychuk, M.: Mollins, N.: Murdock, E. L.; MacDonald, H. W.: McConaghy, J. W.: McDonagh, Aileen: McLeod, D. A.; Niebel, E. H.: Netherton, W. J.; Porter, J. F.; Purdy, C. F. M.: Robertson, G. A.; Rupert, E. A.; Shragge, G. E.; Snell, A. R. J.; Sutter, S. H.; Seale, G. W. H.; Turner, W. J.; Wagner, G. W.; Webb, M. E.; Wilson, M. R.; Yoerger, W. G.

### Passed in Anaesthetics

Allen, N.; Bagnall, J. S.; Bannerman, C. J.; Barber, J. C.; Caldbick, L.W.; Corbett, F. M.; Cummer, H. H.; Davidson, A. G.; Davidson, H. T.; Dixon, H. W.; Fumerton, A. S.; Graham, J. E.; Green, Geo.; Gott, A.; Hall, H. R.; Heidgerken, G. F.; Jackson, W. R.; Joy, Marion; Keith, W. F.; Keyes, E. C.; Knight, H. N.; Legueyer, L. J.; Long, H. J.; Magrath, M.; Magrath, J. L.; Minaychuk, M.; Mollins, N. Murdock, E. L.; MacDonald, H. W.; MacKenzie, A. S.; McConaghy, J. W.; McDonagh, Aileen; McLeod, D. A.; Niebel, E. H.; Netherton, W. J.; Porter, J. F.; Purdy, C. F. M.; Robertson, G. A.; Rupert, E. A.; Shragge, E. A.; Snell, A. R. J.; Sockett, R. J.; Seale, G. W. H.; Turner, W. J.; Wagner, G. W.; Webb, M. E.; Wilson, M. R.; Yoerger, W. G.

### PASSED IN MATERIA MEDICA AND THERAPEUTICS

Allan, A. W. M.; Allen, Norman; Bannerman, C. J.; Barber, J. C.; Blight, T. F.; Clay, M. A.; Climo, C. B. H.; Coristine, W.; Craigie, C. C.; Croft, O. L.; Crosby, H. S.; Cummer, H. H.; Curtis, D. I.; Davidson, A. G.; Davidson, H. T.; Dexter, C. R.; Dixon, H. W.; Dunlop, H. C.; Elkerton, W. C.; Elsey, J. G.; Evans, J. D.; Fluck, W. L.; Fumerton, A. S.; Gawley, R. J.; Gray, L. M.; Good, A. W. G.; Gooding, S. B.; Hall, H. R.; Hallett, C. N.; Hamilton, W. S.; Hindson, J. D. W.; Jackson, W. R.; Jarvis, C. R.; Johnson, K. P.; Keith, W. F.; Kenny, F. P.; Keyes, E. C.; Kilbourne, L. A.; Knight, H. N.; Langtry, J. H.; Legueyer, L. J.; Magrath, M.; Magrath, J. L.; Maloney, Bertha; Miller, W. A.; Mih ychuk, M.; Mollins, N.; MacDonald, N. S.; MacDonald, H. W.; MacRitchie, G. R.; McCord, D. W.; McConaghy, J. W.; McDonagh, Aileen; McGinnis, J. A.; McLellan, A. J.; McLeod, C. D.; McLeod, D. A.; McMachen, W. L.; McMillan D. B.; Netherton, F. J.; Netherton, W. J.; Pickering, A. B.; Purdy, C. F. M.; Robertson, G. A.; Robinson, G. A.; Roop, L. B.; Ross, B. R.; Rushton, J. A.; Rupert, E. A.; Smith, G. C.; Snell, A. R. J.; Sockett, R. J.; Sutter, S. H.; Seale, G. W. H.; Thomson, Hazel; Ward, J. C.; Webb, Milton,; Wilson, M. R.

### Passed in Jurisprudence and Ethics

Allen, N.; Bannerman, C. J.; Barber, J. C.; Caldbick, L. W.; Corbett F. M.; Cummer, H. H.; Davidson, A. G.; Davidson, H. T.; Dixon, H. W.; Evans, J. D.; Fumerton, A. S.; Graham, J. E.; Green, Geo.; Gott, A.; Hall, H. R.; Heidgerken, G. F.; Jackson, W. R.; Joy, Marion; Keith, W. F.; Kerr, W. J.; Keyes, E. C.; Knight, H. N.; Lent, F. E.; Legueyer, L. J.; Long, H. J.; Mag ath, M.; Magrath, J. L.; Mihaychuk, M.; Mollins, Norma; Murdock, E. L.; MacDonald, H. W.; McConaghy, J. W.; McDonagh, Aileen; McLeod, D. A.; Niebel, E. H.; Netherton, W. J.; Porter, J. F.; Purdy, C. F. M.; Robertson, G. A.; Rupert, E. A.; Shragge, E. A.; Snell, A. D. J.; Seale, G. W. H.; Turner, W. J.; Wagner, G. W.; Webb, M.; Wilson, M. R.; Yoerger, W. G.

### PASSED IN PATHOLOGY AND BACTE IOLOGY

Allen, N.; Bannerman, C. J.; Barber, J. C.; Blight, T. F.; Caldbick, L. W.; Clay, M. A.; Climo, C. B. H.; Coristine, Wilfrid; Craigie, C. C.; Crosby, H. S.; Cummer, H. H.; Davidson, A. G.; Davidson, H. T.; Dexter, C. R.; Dixon, H. W.; Elkerton, W. C.; Elsey, J. G.; Evans, J. D.; Fluck, W. L.; Fumerton, A. S.; Graham, J. E.; Gooding, S. B.; Gott, A.; Hall, H. R.; Heidgerken, G. F.; Hindson, J. D. W.; Jackson, W. R.; Johnson, K. P.; Joy, Marion; Keith, W. F.; Kenny, F. P.; Keyes, E. C.; Killins, M. G.; Knight, H. N.; Langtry, J. H.; Legueyer, L. J.; Long, H. J.; Magrath, M.; Magrath, J. L.; Maloney, Bertha; Miller, W. A.; Mihaychuk, M.; Mollins, Norma; Murdock, E. L.; MacDonald, N. S.; McCord, D. W.; McConaghy, J. W.; McDonagh, Aileen; McLellan, A. J.; McLeod, C. D.; McLeod, D. A.; McMillan, D. B.; Netherton, F. J.; Netherton, W. J.; Porter, J. F.; Purdy, C. F. M.; Robertson, G. A.; Robinson, G. A.; Roop, L. B.; Rupert, F. A.; Smith, G. C.; Snell, A. R. J.; Seale, G. W. H.; Thompson, Hazel; Turner, W. J.; Wagner, G. W.; Webb, M.; Wilson, M. R.; Yoerger, W. G.

### PASSED IN MEDICINE AND SURGERY

Allen, N.; Bannerman, C. J.; Barber, J. C.; Caldbick, L. W.; Corbett, F. M.; Cummer, H. H.; Davidson, A. G.; Davidson, H. T.; Dixon, H. W.; Fumerton, A. S.; Graham, J. E.; Green, Geo.; Gott, A.; Hall, H. R.; Heidgerken, G. F.; Jackson, W. R.; Joy, Marion; Keith, W. F.; Kerr, W. J.; Keyes, E. C.; Knight, H. N.; Legueyer, L. J.; Long, H. J.; Magrath, M.; Magrath, J. L.; Mihavchuk, M.; Mollins, Norma; Murdock, E. L.; MacDonald, H. W.; MacKenzie, A. S.; McConaghy, J. W.; McDonagh, Aileen; McLeod, D. A.; Niebel, E. H.; Netherton, W. J.; Porter, J. F.; Purdy, C. F. M.; Shragge, G. E.; Snell, A. R. J.; Sockett, R. J.; Seale, G. W. H.; Turner, W. J.; Webb, M.; Wilson, M. R.

### PASSED IN ORTHODONTIA

Allen, N.; Bannerman, C. J.; Barber, J. C.; Caldbick, L. W.; Corbett, F. M.; Cummer, H. H.; Davidson, A. G.; Davidson, H. T.; Dixon, H. W.; Evans, J. D.; Fumerton, A. S.; Graham, J. E.; Green, Geo.; Gott, A.; Hall, H. R.; Heidgerken, G. F.; Jackson, W. R.; Joy, Marion; Keith, W. F.; Kerr, W. J.; Keyes, E. C.; Knight, H. N.; Lent, F. E.; Legueyer, L. J.; Long, H. J.; Magrath, M.; Magrath, J. L.; Mihaychuk, M.; Mollins, Norma; Murdock, E. L.; MacDonald, P. W.; McConaghy, J. W.; McDonagh, Aileen; McLeod, D. A.; Niebel, E. H.; Nether-

ton, W. J.; Porter, J. F.; Purdy, C. F. M.; Robertson, G. A.; Rupert, E. A.; Shragge, G. E.; Snell, A. R. J.; Sockett, R. J.; Seale, G. W. N.; Turner, W. J.; Wagner, G. W.; Webb. Milton; Wilson, M. R.; Yoerger, W. G.

### PASSED IN PHYSICS AND CHEMISTRY

Adams, C. G.; Allan, A. W. M.; Allen, N.; Anthony, A. B.; Blight, T. F.; Boyd, C. T.; Bregman, M. A.; Caldbick, L. W.; Clements, R. W.; Connell, J. L.; Coristine, Wilfrid; Croft, O. L.; Curtis, D. L.; Dalgleish, R. R.; Duncan, H. D.; Dunham, J. E.; Dunlop, H. C.; Forbes, R.; Fraser, H. R.; Fumerton, A. S.; Gray, L. M.; Greacen, G. W.; Good, A. W. G.; Gourlie, H. E.; Hallett, C. B.; Harlow, W. E.; Hamilton, W. S.; Heal, H. N.; Heaslip, W. L.; Hill, V. R.; Keith, W. F.; Kilbourne, L. A.; Logan, G. M.; Magrath, J. L.; Maloney, Bertha; Marrigan, J. E.; More, W. G.; MacDougall, G. G.; MacIntosh, C. E.; MacKenzie, W. F.; McConaghy, J. W.; McGinnis, J. A.; McInnis, A. C.; McLellan, A. J.; McLeod, D. A.; Netherton, F. J.; Purdy, C. F. M.; Robertson, G. A.; Ross, B. R.; Rowland, C. L.; Shepherd, R. P.; Shaffner, B.; Sinclair, G. A.; Simon, M. L.; Smith, G. C.; Spence, Maude: Stewart, H. R.; Sutherland, A.M.; Sutter, S. H.; Sweet, T. L. P.; Tackaberry, W. J.; Thompson, Hazel; Toole, J. E.; Turner, W. J.; Ward, J. C.; Wagner, G. W.; Wilkinson, J. S.; Wilson, M. R.; Whyte, G. W. Adams, C. G.; Allan, A. W. M.; Allen, N.; Anthony, A. B.; Blight, T. F.;

### PASSED IN ANATOMY

Adams, C. J.; Anthony, A. B.; Beck, C. L.; Boyd, C. T.; Bregman, M. A.; Clements, R. W.; Connell, J. L.; Coons, K.; Croft, O. L.; Dalgleish, R. R.; Dixon, H. W.; Duncan, H. D.; Dunham, J. E.; Dunlop, H. C.; Forbes, Robeta; Fraser, H. R.; Gray, L. M.; Greacen, G. W.; Good, A. W. G.; Gourlie, H. E.: Hallett, C. B.; Harlow, W. E.; Heal, H. N.; Heaslip, W. L.: Hill, V. R.; Kilbourne, L. A.; Langille, R. M.; Logan, G. M.; Magrath, M.; Mallabar, J. W.; Magee, M. A.; Marrigan, J. C.; Mills, J. G.; More, W. G.; MacDougall, G. G.; MacIntosh, C. E.; McConaghy, J. W.; McGinnis, J. A.; McInnes, A. C.; McLellan, A. J.; Netherton, F. J.; Pickering, A. B.; Rowland, C. L.; Shepperd, R. P.; Shaffner, B.; Sinclair G. A.; Smith, G. C.; Somers, S. N.; Spence, Maud; Stewart, H. R.; Sutherland, A. M.; Sutter, S. H.; Sweet, T. L. P.; Tackaberry, W. J.; Toole, J. E.; Wagner, G. W.; Wilkenson, J. S.; Whyte, G. W. Wagner, G. W.; Wilkenson, J. S.; Whyte, G. W.

### PASSED IN PHYSIOLOGY AND HISTOLOGY

Adams, Chas. G.; Anthony, A. B.; Botting, D. M.; Boyd, C. L.; Bregman, M. A.; Clements, R. W.; Connell, J. L.; Coristine, W.; Croft, O. L.; Dalgleish, R. R.; Duncan, H. D.; Dunham, J. E.; Dunlop, H. C.; Forbes, Roberta; Fraser, H. R.; Gray, L. M.; Greacen, G. W.; Good, A. W. G.; Gooding, S. B.; Hallett, C. B.; Heal, H. N.; Heaslip, W. L.; Hill, V. R.; Jackson, W. R.; Kenny, F. P.; Langille, R. M.; Magrath, M.; Magrath, J. L.; Magee, M. A.; Maloney, Bertha; Marrigan, J. C.; Mills, J. G.; More, W. G.; MacDonald, N. S.; MacDonald, H. W.; McConaghy, J. W.; McInnes, A. C.; McLellan, A. J.; McLeod, D. A.; McMillan, D. B.; Netherton, F. J.; Pickering, A. B.; Rowland, C. L.; Shepherd, R. P.; Shaffner, B.; Sinclair, G. A.; Simon, M. L.; Smith, G. C.; Somers, S. N.; Spence, Maude; Stewart, H. R.; Sutter, S. H.; Sweet, T. L. P.; Tackaberry, W. J.; Toole, J. E.; Turner, W. J.; Wilkenson, J. S.; Whyte, Gordon W.

# Academy of Dentistry of Toronto

Secretary's Office, 167 Avenue Road Toronto, August 31st, 1922

Dear Doctor,

At a largely attended and representative meeting of the city dentists on May 8th, at the College (a notice of which was sent you), a new dental organization was formed under the name of the Academy of Dentistry of Toronto.

It is the intention to thus embrace the members of all dental societies and all other practitioners in the city in one

organization.

The annual fee will be five dollars. Any special expense incurred in sectional meetings will be borne by the individual sections.

The Academy will be divided into sections for intensive study as detailed in the enclosed questionnaire.

There will be sectional and general meetings.

The result of the negotiations with the Academy of Medicine regarding accommodation will be presented for consideration at the first meeting early in the fall.

As the hearty co-operation of every dentist in Toronto is necessary WE EARNESTLY REQUEST YOU TO ANSWER AND RETURN PROMPTLY the enclosed questionnaire, so that the officers may be guided in making arrangements for the winter's work.

Yours very truly,

R. GORDON McLEAN,
President

A. M. HORD, Secretary.

Questionnaire:

How many general meetings during the year would you suggest?

Which section, or sections of the following would you wish to join?

I.—Prosthetic:-

- a. Full Dentures.
- b. Partial Dentures.
- c. Crown and Bridge Work.

II.—Operative:—

- a. Gold Inlays.
- b. Root Canal Operations.
- c. Porcelain Restorations.

III.—Oral Surgery, Exodontia, Anaesthesia.

IV.—Periodontia and Prophylaxis.

V.—Orthodontia.

VI.—Kadiography.

VII.—Economics.

VIII.—Preventive Dentistry.

1X.—Dental Anatomy.

X.—Practical Anatomy (Dissecting.)

XI.—Bacteriology and Pathology.

XII.-History and Diagnosis.

# Saskatchewan Dental Association

List of officers for 1922: President, Dr. A. P. Salter, Saskatoon; Vice-President, Dr. C. W. Parker, Regina; Sec'y-Treas., Dr. E. C. Campbell, Saskatoon,

List of officers for 1923: President, Dr. C. W. Parker, Regina; Vice-President, Dr. F. C. Harwood, Moose Jaw;

Sec.-Treas., Dr. C. H. Wickes, Regina.

Next year's meeting to be held in Regina.

Those present at Saskatoon, 1922, were: Drs. A. E. Webster, Toronto; A. W. Thornton, Montreal; W. D. Cowan, Regina; P. W. Winthrope, Saskatoon; A. P. Salter, Saskatoon; A. L. Johnson, Moose Jaw; H. G. Carson, Saskatoon; W. Ibberson, Saskatoon; C. H. Wickes, Regina; J. D. L. Fasken, Regina; D. J. Brass, Yorkton; R. H. Chewt, Foar Lake; J. A. Stewart, Maple Creek; J. A. McGregor, Regina; R. E. Smale, Regina; M. Robertson, Indian Head; W. J. Gillis, Saskatoon; R. L. Loren, Saskatoon; F. C. Harwood, Moose Jaw; F. E. Skinner, Saskatoon; E. C. Campbell, Saska toon; J. G. Countryman, Saskatoon; G. W. Harris, Saska toon; E. B. Neagle, Battleford; D. J. Ferguson, Saskatoon; J. A. Carriss, Prince Albert; W. E. Watchler, Yorkton; J. E. Fraser, Shaunavon; F. G. Garvin, Canora; J. H. Mitchell, Saskatoon; F. G. Moore, Balcavis; G. B. Somerville, Saskatoon; D. V. McCrae, Saskatoon; H. E. Ager, Watrous; G. A. Munroe, Saskatoon; H. A. Adams, Tisdale; Miss A. M. Munroe, Davidson; R. J. Hothem, Strasburg; G. L. Cameron, Swift Current; S. Moyer, Rosetown; F. W. Lackner, Biggar; town; F. W. Lackner, Biggar; F. W. Martin, Moose Jaw; B. F. W. Martin, Moose Jaw; B. Swartout, Saskatoon; W. W. Irwin, Moose Jaw; H. M. Schweitzer, Regina; C. W. Parker, Regina; L. Strange, Broadacres; W. McGill, Greenan; J. Silknilter, Moose Jaw; W. H. Bulmer, Saskatoon; F. G. Salsbury, Hanley.



### EDITOR:

A. E. Webster, M.D., D.D.S., M.D.S., Toronto, Canada.

### ASSOCIATE EDITORS:

ONTARIO-Carl E. Klotz, L.D.S., St. Catharines.

QUEBEC—Eudore Debeau, L.D.S., D.D.S., 396 St. Denis Street, Montreal; A. W. Thornton, D.D.S., L.D.S., McGill University, Montreal.

ALBERTA-H. F. Whittaker, D.D.S., L.D.S., Edmonton.

New Brunswick-Jas. M. Magee, L.D.S., D.D.S., St. John.

SASKATCHEWAN-W. D. Cowan, L.D.S., Regina.

PRINCE EDWARD ISLAND-J. S. Bagnall, D.D.S., L.D.S., Charlottetown.

Manitoba-M. H. Garvin, D.D.S., L.D.S., Winnipeg.

Vol. XXXIV

TORONTO, SEPTEMBER, 1922

No. 9

# The Words Used in Dentistry

A young profession is always handicapped for the want of proper words to express its meaning and an old profession is often loaded up with so many words and expressions that they tend to confuse rather than clarify. Dentistry has no recognized nomenclature. There is not an upto-date dental dictionary. "Harris' Dental Dictionary" is the last attempt and it is over a quarter of a century old. If a profession be judged by the accuracy of its nomenclature, then dentistry must certainly stand low in the scale. Listen to two dentists talk about their cases and note the difficulty they have in making each other understand what they are talking about.

In this issue is a report of a nomenclature committee which had its origin in the Dental Editors' Association, if it could be digified with such a name. Among the words recommended for general use is "dentural" (adj.) (L. dens, dentis, tooth) relating to the denture. Unfortunately in all these recommended words there is no pronunciation given. It will take a long time to introduce "dentural operation" instead of "dental operation."

Morsal and occlusal, (adj.) to be used synonymously as relating to the masticating surfaces of the bicuspids and molars. The advantage of using morsal surface is that it might be applied to all the teeth. Anyway is there no occlusal surface to incisors?

Pulpless tooth is to be preferred to dead tooth, devital tooth, devitalized tooth, so the report says. The fact is a pulpless tooth may be a vital tooth or a dead tooth. Pulpless means having no pulp and does not mean that the tooth is dead or devitalized or devital. Because the pulp is out of a tooth it does not mean that the tooth is dead or devital or devitalized. Dead tooth means a tooth all the structures of which are dead, and should be so defined in a dictionary. Vital and non-vital, as dead and living, may be applied to the pulp or the tooth and should not be confused. Pulpless is a confusing expression and should not be defined because the state of a tooth being pulpless is no help in treatment.

# Dr. French Goes to Ottawa

Members of the Dental Association and personal friends recently tendered a banquet to Dr. F. A. French, of Edmonton, Alta., as an expression of their esteem and the sense of loss occasioned by the doctor's imminent departure. Dr. French left later for Ottawa, to continue the practice as a specialist in plate work in which he achieved such success in Edmonton.

The Macdonald banquet room was the scene of quite a large gathering. Rev. Father Patton was in the chair, while several speakers expressed the regret which Dr. French's departure caused and the good wishes which followed him to his new home.

Rev. Father Carlton, the doctor's parish priest, told how greatly he and his family would be missed by the parishioners. P. E. Lessard, Dr. French's former associate on the separate school board, praised the executive ability and high character of the doctor. T. P. Malone, on behalf of the South Edmonton citizens, added a word of praise, and an expression of regret, while Drs. Whittaker and A. E. Jamieson told how much their fellow dentist would be missed by members of the Dental Association.

On behalf of the doctor's wide circle of personal friends, J. W. Heffernan presented to Dr. French, a gold Eversharp pencil, a smoking set and a gold picture frame, the latter as a gift to Mrs. French. The Dental Association gave as a token of their esteem a silver tea service, the presentation being made by Dr. Snedden.

In his reply, Dr. French expressed deep appreciation, not only for the gifts, but also for the way in which all members of the local association of dentists had helped him in his

practice.

Dr. French practiced dentistry in Edmonton for the past ten or eleven years, and attained a fine reputation as a dentist and a man. All who know him will wish him good luck in his newly-chosen home.

# **Editorial Notes**

Lord Dawson, the King's physician, calls attention to wasted teeth. He calls wasted teeth those which have been removed to cure disease which is not cured.

Dr. Walter J. Wrigglesworth, Vancouver, B.C., died July 24, 1922, leaving a wife and two children to mourn his loss.

The Dental Society of Western Manitoba met in Souris, Man., Aug. 4th, 1922. Among those present were: Drs. E. H. Clark and H. B. Gorrell, of Minnedosa; W. L. Sawyers, of Carberry: R. J. Dunsmuir, of Virden; W. A. McLaren, of Killarney; C. H. McKenzie, of Hartney; R. S. Rose, E. R. Howes, A. L. Church and S. Doran, of Brandon; H. J. Merkley, of Winnipeg; S. Corristine, of Brandon; M. McDonald of Minnedosa; and H. A. Croll and W. Mitchell of Souris.

Dr. H. J. Merkley, of Winnipeg, gave clinics on impression taking and articulating according to the Hannau method,

which were very much appreciated.

At the conclusion of the clinic the members paid a visit to the Souris and Glenwood Memorial Hospital, where they were entertained by the matron, Nurse Newton, and the staff of nurses.

In the evening the dentists and their wives held a banquet in the King Edward hotel, at which Dr. Merkley spoke.

A liberal rate of interest with absolute security is the attractive offer made by the Minister of Finance to holders of the Canadian Government war loan bonds maturing December 1, 1922. The offer is not made to investors generally, but only to the holders of the bonds soon to mature. The

bonds to be retired, bearing interest at five and one-half per cent., will be exchanged for new bonds bearing the same rate of interest. See the advertisement of the Minister of Finance.

Dr. J. J. McKenzie, for many years professor of Histology, and comparative dental anatomy in the Royal College of Dental Surgeons and more recently professor of general pathology in the University of Toronto, died as a result of a Streptococcus infection thought to be from a local focus about his teeth or from experiments in his laboratory. Professor McKenzie at the time of his death was at the head of the dental research department of the university. Many graduates of the Royal College of Dental Surgeons will remember him as a kindly, earnest, teacher of unusual capacity for work especially in research.

Dr. A. A. Smith, dental surgeon, following a three months' illness from heart trouble, died Aug. 7, at his residence, 593 Dovercourt road. Deceased was born in Toronto 43 years ago, and had resided there practically all his life. He received his education in the Public schools and Jarvis Street Collegiate, and graduated from the Royal College of Dental Surgeons in 1899. He was a Methodist. Surviving are his widow and one son, Earl.

Dr. H. E. Bulyea of Edmonton, has attempted to climb Mount Geikie, the second highest peak in the Rockies.

Dr. Connelly of Toronto is contesting the will of his father who directed all of his estate to be used in erecting a monument to his memory.

Dr. Goldstein, a dentist of Chicago, died following the administration of nitrous oxide gas by a specialist.

Dr. Thompson of Pictou, N.S., is moving to Halifax.

SITUATION WANTED—Dentist, graduate R.C.D.S. 1900, wants situation for five months beginning Dec. 1st. Can take full charge of office or would work as assistant. Address Dominion Dental Journal, Box 3.

FOR SALE—Sask, practice. Excellent buy. If interested write. Address V. S., c.o. Temple Pattison Co., Edmonton, Alta.

FOR SALE—First class Dental Practice and Equipment, excellent location, reasonable rent. Lease runs for two years. Good reasons for selling. Apply, F. J. Furlong, D.D.S., Hamilton, Ont.

FOR SALE—Complete Dental Equipment in old established office. Office rent very reasonable. Apply to C. E. Klotz, 84 St. Paul Street, St. Catharines, Ont.

# Dominion Dental Journal

Vol. XXXIV.

TORONTO, OCTOBER, 1922

No. 10

# ORIGINAL COMMUNICATIONS

# Proceedings of Joint Convention of Canadian and Ontario Dental Associations

The opening meeting was held at 2 p.m., May 15th, 1922, in the Crystal Ball Room, King Edward Hotel, Toronto. Dr. H.F. Whittaker declared the eleventh biennial meeting of the C. D. A. and the 55th annual meeting of the O. D. A. in joint convention assembled, open for business.

Invocation was pronounced by the Bishop of Toronto. The opening address was delivered by the Lieutenant-Governor, Col. Henry Cockshutt, and Mayor A. Maguire delivered an address of welcome. Dr. James Magee in a few words expressed the appreciation of the convention to his Honor, the Lieutenant-Governor, His Worship the Mayor, and His Grace, the Bishop for coming to open the Convention and for their kindly words of welcome.

Dr. R. G. McLean moved the adoption of the programme as prepared by the committees, which had been distributed to the members. This was seconded by Dr. W. E. Willmott and carried.

Dr. F. P. Moore took the chair and called on Dr. Whittaker to read his Presidential address. Dr. S. W. Bradley discussed the address, and moved that it be referred to the Committee on Reports of Officers which was seconded by Dr. Seccombe and carried.

Dr. Whittaker resumed the chair and called on Dr. F. P. Moore, President of the O. D. A. to deliver his Presidential address. Dr. R. J. Sprott discussed the address and moved that it be received and incorporated in the proceedings of the O. D. A. which was seconded by Dr. J. F. Adams and carried.

The Secretary reported that the minutes were read and passed at the final meeting of the last Convention in Ottawa

and had since been published in the dental journals. He, therefore, moved that these be taken as read.

The Secretary stated that letters of regret expressing their inability to be present had been received from Dr. E. C. Jones, New Westminster, B. C., second vice-president of the C. D. A.; Dr. A. W. Thornton, Montreal; Dr. F. W. Ryan, Halifax; Dr. O. B. Price, Moncton, N.B.; and Dr. Terry, of Queensville, Ont. Dr. Terry had written stating that he would like very much to have attended this meeting, but that he is now 79 years of age, and has been ill and confined to bed since last January. It was a splendid letter, and the Secretary moved that some expression of our regret at his inability to be present and sympathy with him on account of his illness be sent to him. The motion was seconded by Dr. Brownlee and carried.

Dr. W. E. Willmott stated that he had been authorized by the Convention Committee to extend an invitation to any dentist in Canada who had been registered in practice for 50 years to be the guest of the Convention. He stated that Dr. Neelands of Lindsay, Dr. Pearson of Aurora, and Dr. Klotz of St. Catharines were present. Dr. A. F. McAvenney and Dr. G. Gilbert were unable to be present. Dr. Magee of St. John stated that Dr. McAvenney had asked him to personally express his regret at not being able to be present at this meeting.

### BUSINESS.

The next order of business was the election of 10 members to the executive council. The President called for nominations and appointed Drs. W. E. Wilmott, Magee and Clay to act as tellers. The following were nominated: Dr. W. C. Trotter, Toronto; Dr. A. J. McDonagh, Toronto; Dr. F. P. Moore, Hamilton; Dr. A. W. Ellis, Toronto; Dr. J. F. Adams, Toronto; Dr. W. B. Amy, Toronto; Dr. H. E. Eaton, Toronto; Dr. H. S. Thomson, Toronto; Dr. G. K. Thomson, Halifax; Dr. F. E. Smallwood, Charlottetown, P. E. I. Moved by Dr. Wallace Seccombe and seconded by Dr. L. G Smith that nominations be closed. As only ten were nominated the President instructed the Secretary to cast a ballot and the above were declared elected.

Dr. Moore named the following as the nominating committee for the O. D. A., Wallace Seccombe, convener; S. W. Bradley, Ottawa; W. G. Thompson, Hamilton; G. W. Fuller, London; W. J. Devitt, Bowmanville.

Dr. Seccombe presented the report of the Canadian Oral Hygiene Committee, and moved its adoption. This was

seconded by Dr. Willmott and carried.

Dr. W. E. Cummer presented, by means of wall charts, outlines and models, a very comprehensive paper, covering nearly two hours, on "Graphic Method of Partial Dental Design." He also distributed a printed outline and charts.

The meeting adjourned at 5.30 p.m.

# Tuesday, May 16th.

The morning session, 9 to 12, was entirely taken up by a series of group progressive clinics, as outlined in the programme.

The Convention assembled for luncheon at 12.30, in the Crystal Ball Room, Dr. Moore presiding. After community singing and solos from Mr. George Allen and Mr. Vernon Carey, of Hamilton, Dr. Moore introduced General the Honorable S. C. Mewburn, who gave a splendid address on the work of the Canadian Battlefields Commission, in providing suitable memorials for the graves of Canadian soldiers of the Great War.

Dr. Conboy moved a hearty vote of thanks to General Mewburn for his splendid address, and to Mr. George Allen, Mr. Vernon Carey, and Mr. Hewlitt, for their musical selections, which was seconded by Dr. Seccombe, and enthusiastically applauded.

At 2 p.m. Dr. F. E. French, of Edmonton, presented a paper entitled: "An Analysis of the Principal Difficulties in Modern Denture Construction," illustrated by lantern slides.

At 3 p.m. short resumes of their clinics were presented by Dr. T. W. Maves, Dr. H. P. Boos, Dr. Edouard Hall and Dr. W. A. Giffen.

Dr. Conboy announced the following Committees appointed for Reference Committees of the C. D. A.:

Committee on Reports:—Dr. E. W. Bruce, (Chairman), Dr. Geo. Gow, Dr. H. J. Merkley.

Committee on Credentials:—Dr. C. S. Arthur, (Chairman), Dr. F. A. French, Dr. R. J. Sprott.

Committee on Necrology:-Dr. W. E. Willmott, (Chair-

man), Dr. J. S. Bagnall, Dr. J. W. Clay.

The Secretary read a message of greeting to the Convention from the President of the Ontario Medical Association, after which the minutes of the first day's sessions were read and approved.

At 4 p.m. the meeting adjourned.

The Convention reassembled at 7 p.m. for a dinner dance in the Crystal Ball Room, under the direction of the Ladies' Committee, (Mrs. W. B. Amy, Convener). A delightful entertainment was provided by pupils of Miss Sternberg, solos by Mrs. Box. Dr. Charpentier, Dr. Beckwith and other artists, and dancing and bridge were enjoyed until midnight. The Ladies' Committee are to be greatly congratulated on the success of this event.

# WEDNESDAY, MAY 17TH.

The morning session, 9 to 12, was completely taken up with Progressive Clinics, as outlined in the programme.

At 12.30 the Convention assembled for lunch in the Crystal Ball Room, Dr. Whittaker presiding. After some very enjoyable community singing, and solos by Miss Mary Bothwell and Mr. Ernest Caldwell, Dr. McLean presented the report of the Canadian Dental Research Foundation, and made an appeal for funds. The adoption of the report was seconded by Dr. Husband and carried.

Dr. Beckwith then rendered some very delightful vocal

solos.

Dr. Whittaker tendered a vote of thanks to Miss Bothwell, Mr. Catdwell, Dr. Beckwith, and their accompanists, Miss Smith, Mr. Foster, and Dr. Fisk, for the splendid musical entertainment.

The Chairman introduced Dr. Tom Smith, of Langdon, N. D., who presented a paper entitled: "Malocclusion as a Factor in Deformity," illustrated by a series of lantern slides.

This was followed by "A Technic for the Extraction of Impacted Third Molars," by Dr. A. E. Charron, of the Mont-

real University, also illustrated with lantern slides.

At the conclusion of this paper the meeting adjourned for a drive around the City, arriving at the R. C. D.S. about 5.30 for a reception and buffet supper given by the College to the delegates attending the Convention, followed by a radio concert in the evening through the courtesy of the Toronto "Daily Star." An opportunity was also afforded for class reunions of different years, for renewing old acquaintances.

# THURSDAY, MAY 18TH.

The morning session, 9 to 12, was entirely taken up with Progressive Clinics, as outlined in the programme.

At 12.30 the Convention gathered for luncheon in the Crystal Ball Room, Dr. S. W. Bradley presiding. After com-

munity singing, and a group of songs very pleasingly rendered by Mrs. Guy Hume, the Chairman introduced Dr. Chas. Hastings, Medical Health Officer for Toronto, who gave a very practical and interesting address. The Chairman thanked Dr. Hastings on behalf of the Convention, and the audience showed their appreciation by a hearty hand-clap.

Dr. Conboy expressed regret that the entertainment originally promised for the luncheon hour had not been forthcoming, and thanked Mrs. Hume for coming on such short notice and helping out in such a wonderful way, which was confirmed

by applause on the part of the audience.

# Business Meeting, C. D. A.

Dr. Geo. K. Thomson presented the report of the Committee on C. A. D. S. Establishment. Moved by Dr. J. M. Magee, seconded by Dr. McIntyre, that this report be submitted to the Committee on Reports which was carried.

# Business Meeting, O. D. A.

Dr. F. P. Moore assumed the chair, and called for the report of the Nominating Committee, which was presented by Dr. Seccombe. It was suggested that the Oral Hygiene and Advisory Committee remain the same as last year. The following officers were nominated:

Dr. F. P. Moore, Honorary President.

Dr. R. J. Sprott, President.

Dr. F. J. Conboy, Vice-President.

Dr. C. A. Kennedy, Archivist.

Dr. J. A. Bothwell, Secretary-Treasurer.

As there were two to be elected to the Board of Governors, the Committee begged to nominate Dr. W. B. Amy and Col. W. G. Thompson.

Moved by Dr. Seccombe, seconded by Dr. Berry, that the report be adopted. There being no other nominations, this report was carried and the above officers and committees declared elected.

The meeting adjourned at 2.20 p.m., to assemble in the grounds of St. James Cathedral for an official photograph, the remainder of the afternoon being left open for the exhibits.

In the evening a public meeting was held in Convocation Hall, under the auspices of the Oral Hygiene Committees of both the C. D. A. and O. D. A. Dr. W. A. Evans, of Chicago, formerly Commissioner of Public Health in that City, gave a splendid address on Dentistry in its relation to the public

with special reference to School and Industrial Dental Services. Solos were given by Miss Vera McLean, and organ numbers by Mr. F. Moure.

# FRIDAY, MAY 19TH.

The morning session, 9 to 12, was entirely taken up by Progressive Clinics, as outlined in the programme.

At 12 o'clock a meeting of the Board of Directors of the Canadian Dental Research Foundation was held.

The Convention gathered for luncheon in the Pompeian Room at 12.30, Dr. Whittaker presiding. After two very delightful solos by Mr. John Hubbard, accompanied by Dr. Fisk, the Secretary read the Minutes for the previous days of the Convention. Moved by Dr. W. E. Willmott, seconded by Dr. G. K. Thomson, that these Minutes be approved, which was carried.

The Chairman called for reports of various Committees. It not being possible to present a complete financial statement until after the close of the convention, the Secretary was instructed to prepare this later, to have it audited and published as part of the proceedings.

Dr. Bush, in the absence of Dr. Cowan, presented the Report of the Committee on Legislation, and moved that it be adopted, which was seconded by Dr. G. K. Thomson and carried.

Dr. W. E. Wilmott presented the Report of the Necrology Committee. Moved by Dr. Wilmott, seconded by Dr. Whittaker, that this report be approved, which was carried.

Dr Conboy expressed his thanks to the Chairman and members of the Committee for their able assistance in the arrangement and carrying out of the Convention programme, and on behalf of the Joint Convention Committee presented to the retiring President of the C. D. A., Dr. Whittaker, the gavel of which he had made such good use during the Convention, suitably inscribed, as a token of highest esteem and regard.

Dr. Whittaker expressed his appreciation of this souvenir, and thanked the O. D. A. on behalf of the C. D. A. for their co-operation and assistance in connection with the convention, also the Chairman and members of the different committees, especially the Ladies' Committee, who had contributed so largely to the enjoyment of the Convention.

Dr. Bush moved a hearty vote of thanks to the Toronto

Dentists and their ladies for their able efforts towards making the Convention such a success in ever way, which was seconded by Dr. Bruce, and applauded. The Chairman asked Dr. Conboy to convey this vote of thanks to the Toronto Dentists, their wives and sweethearts.

The Secretary reported nominations of the Executive Council for President: Dr. S. W. Bradley and Dr. Whittaker. Dr. Whittaker withdrew, and it was moved by Dr. J. M. Magee, seconded by Dr. A. J. McDonagh that the nominations be closed. It was moved by Dr. Seccombe, seconded by Dr. Kennedy, that the Secretary be instructed to cast a ballot in favor of Dr. Bradley, who was then declared elected president of the Canadian Dental Association for the following two years.

For 1st Vice-President, the nominating Committee begged to nominate Dr. E. C. Jones and Dr. J. M. Magee. Dr. Magee withdrawing, and no other nominations being made, Dr. E. C. Jones, of Westminster, was declared elected 1st Vice-President.

For 2nd Vice-President, the Committee nominated Dr. G. K. Thomson and Dr. F. J. Conboy. Dr. Whittaker moved nominations closed, seconded by Dr. Harry Thomson. Election by ballot followed, Dr. Walter Thomson, Dr. A. J. McDonagh, and Dr. J. W. Clay, acting as scrutineers. The scrutineers reported a majority of 10 for Dr. G. K. Thomson, who was declared elected 2nd Vice-President.

Dr. Bradley assumed the chair and thanked the members for the honor conferred upon him. He then announced a meeting of the Executive Council of the C. D. A. immediately at the close of the present meeting.

The Secretary presented the Report of the Executive Council. It had been decided to hold the next Convention in Vancouver, in 1924, and as no B. C. men had been elected to the Executive Council at the opening session of the Convention, the Council recommended to the Association the temporary suspension of Para. 4, Sec. 1, Art. 6, page 5, of the By-Laws, to allow the addition of the ten following names, as members of the Executive Council, to those already elected: Drs. J. S. Dohan and Ernest Charron, Montreal; H. J. Merkeley, Winnipeg; H. F. Whittaker, Edmonton; Dr. Ferguson, Saskatoon; and F. P. Smith, T. W. Snipes, E. C. Jones, J. S. Bricker and W. J. Bruce, of British Columbia. Dr. H. S. Thomson had resigned from the Executive, and Dr. Vander-

voort of Vancouver was appointed in his place. The Secretary moved the adoption of this report, which was seconded by Dr. J. M. Magee and carried.

There being no further business, the meeting closed after

singing "Auld Lang Syne."

# **Dental Caries**

Discussion of papers by Dr. Percy R. Howe, Bruce L. Taylor, D.D.S., and W. G. Rickert, D.D.S., read before the Institute of Dental Teachers at Montreal January, 1922, and printed in the September number.

# A. E. Webster, Toronto.

Inasmuch as Dr. Rickert has suggested that certain filling materials have some therapeutic value in preventing dental caries, I would ask that he kindly say a word as to just how valuable they are.

Dr. Rickert: Starting in with the pure metals themselves. as gold, silver, copper, and to an extent platinum, I have done some work which shows that if organisms are held in the immediate vicinity of or in close contact with metals such as I have mentioned for a long period of time, their growth is inhibited. The commonly accepted theory of the protection. afforded by certain salts and metals, as copper in amalgam or iodides of copper incorporated in a cement or allow is based on this idea: That a part of that metals or metallic salt goes into solution and forms one of the metallic salt antiseptics. So when we incorporate this substance, the first thing I would say in answer to the question is this: That it depends a great deal on how this filling is put in. If we have leaky margins so that saliva and other things attack the metal between the marginal walls of the enamel and dentin, a portion of the substance is broken down and naturally we have some antiseptic action. In other words, dentistry, the type that we haven't heard anything about in the discussions here, but where men work under unclean conditions, never carefully clean out the cavity, do not adhere to the ideals which have been expressed at these Institute meetings in regard to cavity preparation, then one of these filling materials has an advantage in that decay is inhibited under such conditions. I have seen some cases in which gold was put in fifty years ago, the men who did the work were not even dentists, and I was impressed how clean the dentin looked under the fillings. So if the filling is well done, especially with condensed gold, there should be no decay.

One point I omitted is this: The question is often asked,

what attention should be paid to the cleansing of a cavity before the insertion of a filling material? That question might have come into my province. Should we use mild or strong antiseptics, or simply clean water, in the cavity before inserting the filling? I am not an operator, it is my business to investigate certain of these questions that have come up, and I have not had opportunity to do this because, after a cavity is prepared and filled and saliva has gained entrance to it it would take years to determine whether it is sufficient to use clean water instead of antiseptics and then insert the filling. But from what I have done it is my opinion that plain water used in washing out a cavity on clean cut dentin is sufficient to protect. It must be, because early workers certainly did not know anything about antiseptics, but were clean in putting in the filling. Under certain conditions antisepties may injure the pulp.

I would be glad for further information if some one who knows more about this subject would discuss it.

# Dr. Harold DeW. Cross, Boston, Mass.

There is no more important subject than the one under consideration, as almost the entire practice of dentistry is occasioned by the direct result of dental caries. The various aspects of the subject as assigned for the three papers just read have been very carefully and thoroughly presented and it can be considered that many of the points have been very skillfully handled considering the lack of any absolutely conclusive evidence.

In regard to Dr. Taylor's paper, "Oral Prophylaxis and Mouth Hygiene," I thoroughly agree with him that there has been a very definite lack of attention to the proper cleaning of teeth by the profession at large, and also in regard to the teaching of this procedure to students. The list of subjects presented which should be taught in regard to this is excellent, as are also the methods suggested for brushing and instrumentation.

The long period of years during which dentistry has been practiced and the increasing number of persons receiving its benefits has not lessened the occurrence or prevalence of dental caries; neither has the attempt to apply a remedy, based on the Miller theory, shown results during forty years or so of knowledge of it.

If by the prevention of dental caries is meant a slightly lessened re-occurrence, it is correct to teach the dental student

all that he is now taught in regard to those things having a tendency to reduce this occurrence; that is, operative mechanical processes, therapeutical and mouth hygienic procedures. But, if we understand by "prevention," the preventing of the original occurrence, we may inquire just how much in this direction is a dentist able to do: how much of an opportunity does he have to do anything at the right time, and what does he know how to do, if he had the opportunity?

It may be granted that relatively much can be done by a well trained and well informed dentist to reduce the reoccurrence of dental caries, but if we accept the only theory of the cause, which has not been disproved, the dentist is able to do practically nothing as a real prevention, since the time for such action is past when he begins his work. To be sure cauterization of initial cavities and filling of structural ones is early treatment, but not really preventive,—and these are about the earliest work which can be made as strictly dental procedures.

Dentistry as practiced today is purely a reparative art, and consequently the training given the student, although developed to a high degree is of the same limitations.

There has long been some difference of opinion as to whether or not dentistry is a branch of medicine; and while the purely mechanical reparative work may not be classified, the therapeutic operative procedures certainly are very closely related to the healing art.

There can, however, be no doubt that if we are to recognize diet and the lack of general physical well-being as determining factors in the cause of dental caries, there should be no doubt as to the classification of one who is to determine when, what, and how to apply measures for the prevention of dental caries. Also if this person is to be called a dentist, he must have considerably more medical training than at present. A student, to be fitted to advise in pre-natal and pediatric practice, even to the limited extent of its application to dental matters, means that he must have a thorough training in all subjects usually dealt with by these specialties, after the fundamental general medical course. It will not be sufficient for him to have merely a superficial knowledge of dietetics and nutrition so that he can advise empirically beneficial things for the teeth to the possible detriment of some pathological condition. This would seem a dangerous procedure and it would appear better to leave the matter entirely in the

hands of the medical men as at present, as with the increasing knowledge and interest by them in the cause and prevention of dental caries, it may be that the dental student will not need to be taught much of anything more than he is at present, except to realize the *cause* of dental caries and advise the necessary attention by a physician.

If the dental student is to know how to practice actual "preventive" dentistry, he must be taught nearly everything which he is not today, and almost nothing which he is now taught: that is, a full medical course with such special lines as deal with preventive work and not any mechanical training.

It the cause is a deficient dietary, as Dr. Howe appears to be proving, the matter is automatically taken out of the dentist's hands until such time as he is taught details, as well as the fundamentals of nutrition. His experiments and deductions seem to be authentic and have already successfully withstood more check-up and investigation than have any prior theories. We, however, do not yet know with certainly just how large a part of the cause of dental caries is attributable to nutrition, and how much, if any, to purely local conditions. Until recently many, while thinking the evidence in favor of diet as a cause, to be very important and convincing taken alone, yet, were unable to find a satisfactory explanation of the way in which lime or nutrients could reach or leave the enamel after it was formed. The belief in the absolute permanency of enamel may be now considered as obsolete; and some very important information regarding the structure of the teeth has been given to us by Box and Bodecker.

Not entirely pertinent to the subject but very closely involved with the teaching of dental students is the question as to whether or not dentistry will continue to be a mechanical art separated from medicine, as at present, or to be divided into two branches; one continuing to practice reparative dentistry, and the other developing dentistry as a specialty of medicine similar to its other specialties and based on a complete medical training. If so, the later group of dental students will need to be taught a general medical curriculum, and inasmuch as their work, at least for the most definite results, must be largely with young children, they must have a very thorough training, in pediatrics and probably little dentistry, although the latter can well be limited to physiological and pathological conditions, with very little, if any, of the operative mechanical procedures.

# Edgar D. Coolidge, Chicago.

With so many men doing such excellent work and all of which has great bearing upon the subject in hand, it seems to me we may be led astray in that, instead of gaining the perspective of all of these points and digesting them, we follow one to the exclusion of all the others. In listening to a half dozen men discuss the subject of prophylaxis we get a half dozen different ideas, all correlated, but each man has more or less a different way of applying his ideas. In listening to discussion of the different subjects which deal with mouth hygiene or with prevention of dental caries, we obtain various viewpoints. Just how to sum these points up is hard for me to say. But I wish we might be able to influence those who are leading us not to entirely ignore the activities of the other fellow who is also very enthusiastic and may be doing great work along similar lines. In other words, let us not run off at tangents and feel that any one of these very important things holds the solution of the entire problem itself. scope of this subject includes practically everything with which we deal in dentistry. Every department in our dental schools must include in their teaching something in regard to prevention of dental caries. We cannot relegate to any one department the duty of summing up and giving as a single course to a group of students, all that should be taught on the subject of preventive dentistry, it must be included in every department of our teaching.

I would add emphasis in regard to what he has said about dentists overlooking the prophylaxis and the resultant diseases of the gingivae. All will agree, I believe, that whatever condition may be finally demonstrated to be the cause of dental caries, it will undoubtedly still be desirable for people to keep their teeth clean. And while lack of cleanliness will unquestionably always be considered a contributary factor of no small proportion, I cannot agree with the essayist in making preventive dentistry and oral prophylaxis synonymous, for while there have been indications that dental prophylaxis influences the prevalence of caries to a slight extent, I believe that those in the best position to judge of this are still of the opinion that nothing as yet has been proved in this connection.

The emphasis which Dr. Rickert has placed on the necessity of determining the cause before attempting a remedy and his summing up of the failure of past and present methods of combating dental caries can but meet with approval. His

regard for research is to be heartily approved. As he says "even if the etiology is obscure, it should prove a stimulus to research" is a necessary and desirable teaching for dental students. While it is probably true that "the majority of the investigators at the present time are of the opinion that the cause of dental caries is to be found in the environment rather than in the physical constitution of the tooth," it is always well to look upon both sides of the question and not undertake its solution except with an absolutely open mind.

In this instance may not the opinion referred to be the result of the dentist's training and to the fact that up to the present time so much reliance has been placed in purely mechanical procedures to prevent caries? Why is it unreasonable to assume that the teeth, of all organs of the body should be the ones pre-determined not to be influenced by the various nutritional factors which affect the body as a whole? And why should the teeth alone be subject to "environment rather than to their physical constitution?" The classification under which the essayist presents his subject; the management of the environment; the limited information available necessary for the development of more perfect tooth structure; and the consideration of drugs which have won a place in the management of dental caries; presents the subject of the possible effects of therapeutics in a very thorough manner.

The references to the variations of the chemical composition of salivas is an interesting phase and we may suggest that immunity to caries results not on account of the calcium content of the saliva but because the system has been able to obtain and retain a sufficient amount of calcium, and the teeth may be immune because of their full calcium content received through nutritional sources.

As has been suggested, the results obtained by Dr. Broderick in the control of calcium metabolism by endoctrine therapy are pregnant with wonderful possibilities, as everything seems to point to calcium as one, if not the most, important constituent to control.

The essayist truly says "the fundamental cause of dental caries is beyond the control of the hygienist" and we may add that this is equally true of therapeutic agents, in which class may be included filling materials, as well as dentifrices and mouth washes referred to by him.

Dr. Howe has presented information of great interest and the deductions which he makes relative to the effect of foods, especially the so-called dietary essentials and calcium, is undoubtedly a closer estimate of conditions as they exist than are most of the causes which have in the past been considered to superinduce dental caries.

It is undoubtedly of value for the dental student to know of the condition of the teeth of uncivilized races; also of their natural foods in comparison with the civilized de-mineralized ones. And to know the results of refining: cooking methods: fractioning reconstruction: drying and the preserving of foods.

We might well carefully consider what he has said in regard to the importance of a fundamental knowledge of a suitable dietary; the caloric content of it, as well as the so-called vitamines. However, these are matters of doubtful importance to teach the dental student, as they can be of little benefit to him; for as a dentist, and as dentistry is now practiced, he will not be able to make any practical use of this information, on account of his lack of general medical knowledge and training.

We may assume from the wording of the subject that the cause of dental caries is known, but all are not yet agreed as to what it is, as is evident by the papers read at this meeting. There may be considered to be two fundamental theories of the cause of decay; first, Fermentation—prevented by dental prophylaxis, etc.; therapeutic agents, mouth washes and drugs; coarse foods, development of teeth and jaws through exercise and cleaning the teeth by eating fibrous foods. Second; Malnutrition—prevented by diet or control of endocrine glands.

Not only are there different theories as to the cause of dental caries, but different opinions as to the meaning of "prevention," varying from accomplishing this originally, entirely, and completely, or only to a limited extent, postponing its re-occurrence. Filling or treating never has, and never will, prevent the occurence or re-occurrence of this condition, except to a very slight degree. Dentistry as an art has been entirely directed to restoring lost tissue, and to repairing or curing conditions after they have occurred. It is well known that no condition or disease has ever been prevented by treatment after its occurrence, consequently, it is necessary to make the plan for the prevention of caries active before its occurrence

What the dental student should be taught in this connection cannot be discussed without dealing with the cause: and to teach him so that he may be prepared to prevent dental caries, we must know something definite as to the cause: we must know the remedy and how to apply it. And also probably to reconstruct the practice of dentistry so as to permit the dentist an opportunity to apply the remedy in season.

There have already been two epochs in the progress of dentistry; first, the extracting; second, the reparative. We are just beginning to consider the third, or "preventive" stage. Reparative work was the natural outcome of the first, and has been developed to a very high plane of efficiency through the application of the arts and sciences, and I would not depreciate in any way either the necessity or the desirability of the remarkable progress made in this phase of the work. The third, however, is in no way a development of the second, or reparative, stage except that its need was shown by the failure of it to "prevent."

In discussing these three excellent papers the first thing that should be considered is that we are dealing with teaching problems and teaching methods, and not entirely with investigation and research. Nothing would please me more than to confine my remarks to the newer facts and theories that are mentioned in the papers and omit the foundation which must be give to our students before they can comprehend or evaluate the theories and have the proper perspective of the entire subject under discussion.

Dr. Howe has given us an entirely new angle upon the subject of dental caries, and every teacher of this part of the curriculum should for his own information follow very closely every step of progress made by the investigation in which Dr. Howe is engaged and should also follow the work of McCollum and any others who are making careful and continuous studies along similar lines. If the character of the teeth can be changed by improper diet after the tooth has fully matured and actual physiologic decalcification can be experimentally produced while the tooth is in position, there is abundant evidence that prevention of dental caries lies to a very large extent in a properly regulated diet. There is no doubt that it appears to be a very hopeful line of investigation. However, let us not advance so fast and disregard the experience and teaching of our great minds of the past that we may become extreme in this line of thought. The phenomena of the beginning and progress of dental caries as explained by Miller and Black both in caries of enamel and caries of the dentin should be more thoroughly comprehended universally, and each new idea should build up our entire understanding of the subject rather than to tear down and start over.

A definite course of instruction should be given on diet. Our essavists have not recommended texts for us. University of Illinois we are using Turner's General and Dental Hygiene, supplemented by the work of McCollum on Newer Knowledge of Diet and Nutrition and journal articles by Howe and others. I believe much thought and consideration should be given to the arrangement of this course and continuous changes and additions will of necessity be added as new thought is developed. The selection of foods for their effect upon the cleansing of the teeth and their nutritive value is a large subject. I wish to emphasize only some of the points recommended by Dr. Howe that should be included in our teaching. The group of unknown substances called vitamines, the calcium requirement of different ages and periods of life, that vast and important group of proteins which differ so from each other, the caloric value, the balancing foods, the effect of sugar, organic acids, raw and green foods, etc., should be given consideration. One of the best methods of teaching this subject that I have seen is that employed by Dr. Seccombe, who presents by means of lantern slides many charts and even paragraphs taken from some of the more important portions of the text which are difficult to understand, in order that the student may study these points visually while they are being considered.

Dr. Taylor has given us a splendid paper and has outlined teaching methods very clearly. I agree to most of his recommendations and believe if they are followed that much good will be accomplished by the students receiving such definite lines of instruction on prophylaxis. The general practitioner and those who limit their work to special branches must meet and assume the responsibility for this work and see that their patients are given the proper treatment which has been so sadly neglected in the past. Our students should be given just such careful and thorough instruction as is recommended by Dr. Taylor. His method of pairing students and having them work upon each other is excellent and in our infirmary has been found to be of great help in teaching.

There is one point especially that I wish to emphasize.

The careful examination and recording upon a suitable diagram of everything in the mouth of the patient which relates to a lack of cleanliness or deviation from normal. If the student is taught to make a very careful and exhaustive examination and to record all findings of salivary and serumal calculus, all open or improper contacts, all overhanging fillings and poorly fitting crowns, any evidence of abuse of the gums and gingivae from dental operations or by the patient's operations in cleaning, and any other abnormal condition of the teeth or soft tissues,—let me repeat, if these things are found and carefully recorded there is infinitely more chance of their correction and removal.

Therapeutics is defined as the application of remedies in the treatment of disease. The subject under discussion is prevention, and, strictly speaking, there is no therapeutics only as prophylaxis and the treatment so-called may be considered as therapeutics.

Dr. Rickert has brought to us a very interesting paper. He has emphasized the importance of establishing the cause of a disease before attempting to treat it, which is all-important. It is necessary to precede any discussion of therapeutics with a discussion of the pathology of the part for which agents are used in treating the disease. The time is too limited to enter into such discussion. Antiseptics and dentifrices are of very doubtful value in the prevention of dental caries. As pointed out by Dr. Rickert, the time of actual use is so short that there is no lasting value in their action. However. I do feel that the student should be taught the basic principles of the dentifrice problem and be given a certain amount of instruction in the preparations for the mouth and teeth, the effect and value of the various ingredients of such preparation for the purpose of chemically and mechanically removing the material which is active in the cause of caries. and given an understanding of how to make proper and useful combinations.

The relation of the amount, rapidity of flow and character of the saliva to oral hygiene should be emphasized and considered in connection with the study of alimentary canal conditions and the effect of cathartics-alternatives. Dr. Rickert suggests the hope that we will try to encourage and develop research, which I think is one of the most important things to be considered. Our students should be given much reference reading and writing of themes and papers to en-

courage this work. To require an essay on prophylaxis compels study and has been found in my classes to stimulate great interest.

I want to say one further word in regard to the calcium content in relation to the development of dental caries. seems to me we should not forget the fact that dental caries of enamel and dentine has been thoroughly demonstrated and described by Drs. Miller and Black, and while we want to progress by taking up every bit of advanced information that comes, let us be just a little bit careful that we do not undermine what we have until we have something substantial to stand upon in the newer theories. And by all means in our teaching—and we are here to consider teaching problems let us not teach that which is too theoretical; let us study, let us investigate, let us add to what we have, but let us not destroy what we have until we can replace it with something that is better. Let us get the vision of the entire field of mouth hygiene and prophylaxis, of prevention of dental diseases and dental caries, let us get the vision of the whole organism of human life, the relation of one part to the other and that no one part can be treated individually. So let us keep our feet on the ground as we move forward and not feel that the last idea developed contains everything. due respect and credit and congratulation and compliments to those who are leading us in the work, let us not lose our position on the ground as we consider these problems that have been brought to our attention today.

# Alfred Owre, Minneapolis

It is exceedingly fitting that we should give emphasis to the messages that have been presented to us this morning. They are very important, for they have come to have international significance. When we look over the addresses given by such men as Dr. Howe, Dr. Wells, Dr. Sims Wallace, we can understand the recent wide-spread interest in questions of health. To my mind, few things more significant for human well-being have occurred since the war than the recent conference held in Manchester for the discussion of the dietary reform. Public men spent two and one-half days of their time talking over the menace to the state involved in the increasing incidence of caries, and methods of combating this danger which should be more effective than mere mechanical therapeutics. The gathering was composed largely of physicians and other scientists. These men looked for the

underlying cause. They gave their attention, not to tinkering, but to food. The physical destruction of the race, so alarming to statesmen, they felt must be attributable to something fundamental in human economy. Like Plato in the old days, they went back to the source, they inquired into what people eat.

They were not content with a mere inquiry. The conference was followed by the establishment of various societies for the promotion of dietary reform. Every effort is now being made to bring the necessity for such reform before the public. It is recognized, also, that with weakened physique goes spiritual depression. The investigation has been extended to almost every phase of English life in an effort to get at the fundamental difficulty.

One Englishman whom I recently had the pleasure of meeting has made a notable contribution to our knowledge of the importance of food in human economy. Col. McCarrison went to India twenty-five years ago to engage in the practice of medicine with the British army. His work took him into an outlying district of India. There among the primitive people he was impressed by the complete absence of gastro-intestinal diseases, so common—and so fatal to—civilized man. His interest in the matter led him to experiment with the animal most closely related to man, the monkey. He fed a number of monkeys for a certain period of time on the over-milled artificial foods commonly used by the British. Briefly, the experiment showed that in every instance the animals had remained healthy on the natural diet, but after a few weeks of the artificial diet they invariably showed one or more pathological conditions similar to those so common to civilized man with ultimately actual destruction of the muscular tissue of the intestinal canal. Dr. McCarrison stated unqualifiedly that food-reform in England would eliminate at least one-third of the gastro-intestinal diseases now prevalent. Many of us in the audience of physicians and scientists thought he might safely have gone much farther. There is no question that many other diseases, for example carcinoma, would be greatly lessened.

It is encouraging to find the importance of this question at last being recognized. Personally, I regard it as of the very foremost importance to us in our effort to combat the forces of destruction always at war with human kind.

# Louis Ottofy, Chicago

It is impossible in the few minutes I shall take to discuss these three excellent papers, but I wish to suggest an entirely new line of investigation to those who perform this important work in the research laboratory.

The entire matter simmers itself down to one point: that is, to reverse what Dr. Howe has shown us he can do. He can cause, by altering the diet, destruction of the teeth. What we now want him to do, is by altering the diet, to cause calcification of the teeth. He has shown by slides cases without hygienic care, and yet perfectly sound teeth. That is one condition we want to bring about.

The dietary selection is undoubtedly satisfactory. next step is digestion. To aid this process, satisfactory means seem to have been found. Then comes assimilation. and up to this point there seems to be no difficulty. after that, that difficulties arise. Every dentist has seen many cases, in which there appear to have been sufficient lime salts brought into the circulatory system, but that these lime salts have not found their way into the tissues where they are required. Thus we find many cases, in which there are excessive deposits of salivary calculus, (which are nothing more or less than nutritious lime salts), they are deposited on the outside of the teeth, while the teeth themselves are suffering for the want of these same substances. would be no difficulty, if we knew how to direct the lime salts into the proper channels. The diet in these cases was correct, digestion sufficient, assimilation has taken place, but the end-product has not been directed in the right channel.

I believe that eventually a solution of this problem will be found in one of the centres of the nervous system. There are now more than fifty-five nerve centres known. Of some of them, like the cardio-accelerator and the cardio-inhibitory centres, the location and function is well known. Of others, like the trophic center, less is known. Some other centers are known to exist, their general location has been determined but their function is not so well understood. I believe that there is probably some such center, as a "selective center," if you please; because unless the direction of the lime salts into the salivary glands, instead of into the teeth, were under some control, this function would differ from others most radically. I do not think the mineral salts found in the saliva are ever normal constituents of it. When the sal-

ivary glands excrete mineral salts, they temporarily assume the functions of an excretory gland, as is evident when these glands excrete uric salts during disturbances of the functions of the kidneys.

Hence, if a condition can be brought about, whereby the lime salts can be directed to be deposited within the teeth, forming dentine and enamel, instead of being deposited on the outside of the teeth, forming salivary calculus, this problem will be solved.

# Wallace Seccombe, Toronto

It is not my intention to enter into a detailed discussion of the symposium of papers we have had the pleasure of listening to. I rise, Mr. President, to make a motion in relation to the appointment of a committee to give this matter of Preventive Dentistry careful study between now and the next meeting, and bring in a report which will have the effect of crystallizing the discussion and focussing our attention upon it at the next meeting of the Institute.

Before making that motion I would like to say that our discussion of diet in relation to dental disease has been most interesting, but I think we would do well to appreciate the fact that it is unnecessary for us to reject Miller's theory of dental caries. There are many men here who appreciate the essential nature of diet in relation to dental disease, and are able to do that and co-relate their ideas with Miller's theory, appreciating not only the constitutional effect of nutrition, but also the fact that these results show up in the mouth and that we have there the reflex of the entire sequence of events.

I desire to compliment the essayists. It is a fitting close to many expressions which we have heard at this instructive meeting, where the idea of prevention has been so very prominent. We should have our ideas cleared up, however, as to just what is prevention. In our discussions this morning we have had the question of prevention quite intimately linked up with Operative and Prosthetic Dentistry. Certainly these phases of operative procedure are absolutely important, but I would classify those procedures rather as phases of operative or prosthetic dentistry. Preventive dentistry must go farther back. There must be an underlying study of the fundamental principles. In effect, prevention is really applied physiology, and we must make it possible for all these

other chairs to take advantage of the fundamental factors established, and apply them in their own teaching.

Mr. President, I feel that the only way to get our ideas as an Institute crystallized would be by the appointment of a committee. Therefore I move that the chair appoint a committee to give the matter careful consideration and report at the next meeting as to the proper scope of the Chair of Preventive Dentistry in the dental curriculum. We have had such a chair in the Royal College of Dental Surgeons for the past five years.

# A. E. Webster, Toronto

Without giving full expression to my personal gratitude to the members who have taken part in this symposium, I want to get before the Institute the idea as it is presented to my mind.

What shall we teach the student—that is, what of any subject should be taught? It is the sane presentation of what is known that should be taught, not the results or thoughts of enthusiasts. Those are secondary to what is known. Whatever we know, we ought to teach, and, as Dr. Coolidge has said in the presentation of the subjects we have in science we should be careful that we keep our feet on the ground all the time. The public is concerned in this problem quite as much as the dentist. Young men go out to practice, somebody comes along and suggests that they should use this, that or the other thing, and recommend it to their patients for this, that or the other purpose. What fundamental knowledge has the student obtained from his professors that will protect him from pseudo-science from some other quarter?

As to what we shall teach, there is not any agreement particularly in many of these papers. For instance, Dr. Taylor discussed the subject of prophylaxis. We should like to know of what prophylaxis consists: what shall we teach our students under the heading of prophylaxis? That is why I concur in what Dr. Seccombe says. Let us decide this question, then have the methods of brushing the teeth taught. What shall we tell the student with reference to the value of brushing the teeth so far as prevention of dental caries is concerned? He wants to know and the public wants to know.

Dr. Taylor states that there is no classification of instruments; then let us have such a classification. He says that there is no classification even of diseases of the gingivae; let us have a classification, because we cannot go on intelligently in the presentation of facts concerning these diseases until we have such a classification. Dr. Taylor says that we should treat all conditions affecting the sub-gingival surfaces before applying prophylatic treatment to the exposed surfaces of the teeth. Do we agree in that? Which is the right thing to do? Dr. Taylor recommends that we do the polishing of the teeth with the engine. The men who introduced this manicuring of the teeth would not dream of using the engine for a polishing, they condemn it. What should we teach?—that is what we want to know.

Then what are we going to tell our students that we should expect from prophylaxis? Dr. Rickert's excellent paper tells us definitely some sure things in regard to mouth preparations. He told us that he believed it to be unnecessary to use any antiseptic in a tooth cavity before filling. Is that right or is it wrong? We must tell him what to do or what not to do. We expect to put something over the pulp when almost exposed; shall we try to disinfect with nitrate of silver or formaldehyd, or not?

These papers are presented for the purpose of getting down to concrete facts; teach what we know and teach it well. So far as conjecture is concerned, the theories brought forward to support it must all be taught, but let them be taught in the fourth year. In the primary years let us teach some one thing we agree on and teach it well, and what is conjecture we can teach when the students are far enough along in their courses to judge for themselves.

# Dentistry in the Far North

Jean Grant, Calgary, Alta.

Just because Dr. Miller has a practice that is all his own in a territory that is several miles in extent does not mean that anybody else can take it away—not for this season at least.

Possibly he objected to being crowded, or perhaps he wanted a holiday—but in any event he left Edmonton, Alberta, where he had an office and struck north, took the train to Fort McMurray, then by steamer and the variety of conveyances used for transport in the pioneer stages of a new country reached Fort Smith on his way to the Arctic Circle and now he ministers to the molar ailments of adventurous fur trappers and traders, mining prospectors, and men who

are engaged in developing the oil prospects in that portion of the Dominion called the North West Territories.

"Forts" which are only forts in name, abound in the northern portions of Alberta and in the North West Territories, and are relics of the old fur trading days when the feuds between the trading companies and the necessity of a place of defence against the natives, who sometimes become peevish. Around these forts or trading posts there have sprung up settlements of more or less importance. Dentistry, as it is known and practised in the settled communities, is unknown. At times the strong piece of cord attached to the latch of the door furnished sufficient jerk to remove a troublesome tooth, again the smallest pair of pinchers from some mechanic's kit, in the hands of the man with the strongest grip, was resorted to. In the majority of instances it was a case of "grin and bear it."

But now all this is changed, and extractions and fillings and plates are available to those who can time their requirements to the arrival of Dr. Miller. For it must be remembered that the region where Dr. Miller is now practising covers nearly everything from 60 degrees "down north" as far as he likes to go. But, notwithstanding the land of magnificent distances where he is located, he has been able to secure an assistant. There is a young dental student from the University of Alberta who spends his vacation working on the river boats that carry the furs out of the northern country and take their supplies in. When Dr. Miller can time his visits with those of the student they get through a lot of work at whatever post they happen to be at.

Though the aborigines usually have good teeth, still there is a glamor about dentistry and a glitter about a gold tooth that is irresistible. In the strenuous northern life there are many things that can happen to a man's teeth and a broken one that shows brdly, is all the more suitable location for a gold one. The result is that after a successful season's trapping, when the competition for furs is keen, there may be enough in the Indian treasury to have a real gold tooth put in. With the prestige which the operation gives and the glittering effect itself, we have conditions which approach native "swank" as closely as possible.

# Treatment of Nonunion of Fractures of Mandible by Free Autogenous Bone-grafts

Fulton Risdon, M.D., D.D.S., Toronto.

The indications for bone-grafting of the mandible are: nonunion of fragments of long standing; to replace lost bone due to gunshot wounds; carcinoma; infection, cysts, etc., provided enough of the ascending ramus is in situ or to protrude the mandible when the mental process is deficient.

The preliminary steps may be thus summarized: The patient is examined to ascertain that all infection has been cleared up for at least five months, and that there are no teeth adjacent to the ends of the fragments. The roots of the teeth are always a menace to the graft, and, unless they are removed, sufficient bulk of the graft cannot be inserted. If it is found necessary to remove any teeth in this area, the operation should be deferred for two months. Of course, there are exceptions to this rule, one being when only one tooth remains in the posterior fragment; but in this case greater care is taken at the time of the operation to see that the root area is not included in the bed for the graft. A consultation should now be had with one's dental colleague if not before, as to the desirability of the type of splints to be used, and as to the width of the desired arch of the mandible. A modified Hammond splint has been used by our colleagues, Drs. Campbell and Gordon, with a pin and tube attachments for locking the lower to the upper jaw; and the metal of choice has been Victoria metal, supplied by Claudius Ash, Sons & Co., of London, England. Any metal which, after it has been cast, has still some temper and is strong, meets all the requirements. We have used coin silver with equally good results, but care should be taken in the casting that the baser metals are not lost. Should this occur, it is easily detected, as when the casting is pressed over the teeth the splints spread at the widest part of the teeth and do not grip at the cervical margin.

These splints are cemented with Ames copper cement four days previous to the operation, and the pins are inserted in the tubes on the second day.

The diet of the patient must, of course, be changed, and he is placed on a semisolid diet, including soups, mashed potatoes, minced meats, egg-nogs, junkets, etc., and one bottle of stout a day. These patients do not lose weight but, of course, are not working.

The right or left hip is prepared by the nurse the day before, as the bone selected by us is always taken from the crest of the ilium. We have used the rib with success, and also the tibia, but prefer the ilium for the reasons that it is very easily and quickly obtained; it is more cancellous than either of the bones named above, and greater bulk of bone can be obtained. We assume to a large extent that the theory of absorption of the entire graft and its replacement later by bone-forming elements, as outlined by Gallie and Robertson, is the accepted theory of bone regeneration. If we accept this, the more cancellous the selected bone is, consistent with its strength, the greater proportion of successes should follow its use, and this we have found to be a fact in actual practice.

The type of anesthesia employed is of considerable importance, as the anesthetist must at all times after induction be some distance away from the field of operation. We prefer the intratracheal, in which a catheter is passed under direct vision between the cords into the trachea, and the anesthetic given by a machine, such as the Connell. We have also used rectal anesthesia, but discarded it after seeing the advantages of the intratracheal method. Anesthesia is induced much more rapidly, and the patient recovers more quickly and is more under the control of the anesthetist. We have not attempted any operations under local anesthesia, although we know it could be used, but we feel that this is too important an operation for that type of anesthesia, as the patient might interfere at any moment.

The technic of the operation is most exacting, and in no other field of surgery is it more so. I believe that the entire success of the operation, having previously excluded infection, depends on this most exacting, tedious, excellent technic.

The first step must exclude the mouth, and this is done by placing a sterile piece of rubber dam parallel with the lower border of the mandible, some distance from the line of the incision, and held in position by adhesive tape. When this is turned back it covers the mouth and prevents moisture from soaking through the towels. The neck is now cleansed with pure alcohol, continued for fifteen minutes. After the incision has been made, as a rule about 4 or 5 inches long, the scalpel is discarded for another and the wound completely walled off by towels with clips. Under no circumstances is the gloved hand permitted to come in contact with the wound, sutures or sponges. This is all done by freshly sterilized instruments,

even to the tying of ligatures. This is known as the nontouch technic or bone-technic, introduced by Sir Arbuthnot Lane. We had the privilege of very close association with him during the war, and we feel deeply indebted to him for his kindness and patience in teaching us his methods.

The hip area is prepared in the operating room again, with alcohol, the same technic being observed, and the bone is obtained by a chisel and a mallet. We discarded the electric saw, because we felt that it burned the bone owing to the rapid revolutions of the small circular saws, and in this way destroyed the bone-forming elements. If water was used to overcome the resultant heating, moisture gained access to our wound and soiled our towels. We prefer bone rongeurs, hand drills and the more laborious methods, as they have given better results in our hands. We prefer a square butt joint if possible, and use Belgium iron wire to hold the graft in position. These wires are not removed, and no drainage is placed in the neck wound but is inserted in the hip area. The wound is closed with metal clips rather than sutures, and the splints left in the mouth for three months.

In our clinic seventy operations were performed, resulting in sixty-six successful bone-grafts, four failures, and no deaths, an average of 90 per cent. of successes. In the last two years we have done twenty-one, with one failure, and that failure was due to an opening into the mouth at the time of the operation.—Journal of the American Medical Association.

# Delegates at Canada-Ontario Convention

The following are the names and addresses of those in attendance at the Canadian and Ontario Conventions, held in Toronto in May 1922.

#### ONTARIO

Alliston: Hill, W. J.; Fleming, W. A.; Ailsa Craig: Kennedy, H. J.; Alvinston: Winn, P. P.; Arnprior: Stewart, G. O.; Aylmer: Fear, W. J.; Arkona: Wood, R. G.; Barrie: Sprott, R. J.; Beamsville: Green, C. J.; Freeman, C. J.; Beaverton: Devine, C. J.; Belleville: Clark, M. J.; Marshall, O. A.; Morton, G. H.; Bolton: Dean, R. A.; Bowmanville: Bonnycastle, G. C.: Devitt, J. C.: Brantford: Amos, J. E.; Hart, E.; Moyle, S. T.; Brampton: Mackle, Lawson: Robinson, P. A.; Bracebridge: Topp, J. W. E.: Brighton: McKie, E. C.; Brockville: Beckett, R. J.; Clark, A. M.; Brussels: Hamilton, R. S.; Burkes Falls: Wilson, J. J.; Burlington: Grainger, J. W.; Birchcliff: Alcombrack, A. W.; Caledonia: Berry, R. W.; Cannington: Barker, J. W.; Carleton Place: Baird, W. F.; Cayuga: Billings, M. R.; Chesley: Caulfield, W. J.; Trueman, J. E.; Chatham: Hicks, A. A.; Miller, L. J.; Highley, E. A.; Smith, Neil: Chesterville: Hutt, S. H.; Cochrane: Murray, W.; Cobalt: Armstrong, E. F.; Creemore: Morgan, C. C.; Cornwall: Smith, A. A.; Weaver, O. L.; Cavanagh, W. B.; Collingwood: Robertson, R. E.; Drayton: Liscumb, G. A.; Dresden: French, H. G.; Jeff, W. T.; Dundas: Hill, A. N.; Dunnville: Elliott, E. V.; Delhi: Hendry, F. G.; Eganville: Lambertus, J. A.; Elora: McGregoe, J. K.; Erin: Abbott, J. M.; Exeter: Kinsman, W. R.; Ronalston, G.; Galt: Campbell, O. L.; Cavanagh, W. B.; Collingwood: Robertson, R. E.; Drayton: Liscumb, G. A.; Dresden: French, H. G.; Jeff, W. T.; Dundais: Hill, A. N.; Dunnville: Elliott, E. V.; Delhi: Hendry, F. G.; Eganville: Lamlertus, J. A.; Elora: McGregoe, J. K.; Erin: Abbott, J. M.; Exeter: Kinsman, W. R.; Ronalston, G.; Galt: Campbell, T. F.; Gananoque: Fraser, G. G.; Mabee, A. H.; Goderich: Mabee, L. M.; Grand Valley: Brocker, D. M.; Grimsby: Brownlee, W. A.; Farrell, V. R.; Glences Mumford, R. J.; Georgetown: Watson, F. R.; Guleph: Britton, G. P.; Wing, R. H.; Hagersville: Hyde, R. G.; Trotter, W. J.; Hamilton: Johnston, J. E.; Stewart, J. N.; Fulton. .; Williamson, J. L.; Gray, J. W.; Morley, Warren, Kappele, J. L.; Field, H. L.; Poag, A. R.; Furlong, F. J.; Lester, A. V.; Morrow, H. M.; Burnett, A. C.; Hansel, F.; Moore, F. P.; Griffin, W. T.; Thompson, W. G., Cowan, R. H.; Mitchell, Wallace: Barnby, A. E.; Locheed, J. A.; Scott, J. H.; McLaughlin, W. H.; McEwan, N. J.; Everett, G. W.; Hall, R. V.; Clarke, W. D.; Ross, Charles; Morrow, Maxville: Clappison, O. S.; Manning, W. G.; Sweet, J. C.; Robertson, H. A.; McDonald, J. F.; Hanover: Staples, N. D.; Zinn, S. H.; Haileybury: Crawford, J. C. A.; Sommerville, W. R.; Havelock, McLean, J. L.; Highgate: McCutcheon, R. S.; Ingersoll: McKay, H. B.; Staples, L. W.; Kemptville: Patterson, R. A.; Kincardine: Blackwell, R. A.; Bruee, E. F.; Kingston: Glover, W. R.; Knapp, A. E.; Millan, R. P.; Sparks, E. B.; Wauph-Freeman; Winnett, A. W.; Kitchener: Hilliard, J.; Koeppel, L. A.; Popne, H. V.; Shantz, W. B.; Winn, R. O.; Ledermann, L.; Ruddell, A. F.; Kirkland: Teich, J.; Kingsville: Campbell, T. D.; Lancaster: Gunn, W. J.; Listowel: Spence, W. George H.; Lindsay: Irvine, H.; Leamington: Coyne, C. A.; Lucan: Robinson, E. J.; Marmora: Russell, C. T.; Mount Forest: Allen, G. P.; Roos, E. H.; Meaford: Hartmann, H. N.; Markham: Stewart, R. M.; Markdale: Campbell, T. G.; Dohan, J. S.; Henry, F. G.; Strang, A. M.; Baxter, F. H., L.; Charron, E.; Hamel, Philip; Stevenson, F. A.; Charpentier, J.

Doyle, J. R.; O'Neil, J. G.; Ramore, N. D.; Simpson, C. N.; Preston: Hagey, M. H.; Prescott: Ault, J. N.; Fleming, J. A.; Picton: DeMille, A. C.; Gibson, G. F.; Richmond Hill: Bell, T. R.; Ridgetown: Hooly, M. J.; Routledge, T. A.; Rodney: Richmond Hill: Bell, T. R.; Ridgetown: Hooly, M. J.; Routledge, T. A.; Rodney: Steele, A. C.; Ripley: McLeod, N.; Russell: Proudfoot, P.; Sarnia: Colter, N. T.; Falconer, E. W.; Bentley, W. J.; Langston, T. M.; Kinsman, M. A.; Hartley, W. A.; McKenna, J. J. & Mrs.; Sangster, F. M.; Sandwich: McLister, J. C.; Simcoe: McGuire, G. E.; McGuire, M. M.; Sihler, A. T.; Stratford: Beatty, J. A.; Sebben, J. T.; Staynor: Patterson, B. J.; Sudbury: Hill, E. A.; St. Thomas: Gilbert, Roy, A. Sault Ste. Marie: Ball, G. W.; St. Mary's: Copeland, P. I.; Follick, F. L.; Stouville: Barker, E. S.; Smith, D. C.; St. Catharines: O'Flynn, J. T.; Davis, R. C.; Smith's Falls: Morgan, G. S.; Wickmare, E. H.; Tara: Hughes, S. J.; Tilbury: Mills. G. K.: Toronto: Abbott. E. C.: Adams. J. E.: Agnew, R. G.: Amy, W. B. Mills, G. K.; Toronto: Abbott, E. C.; Adams, J. F.; Agnew, R. G.; Amy, W. B.; Anderson, H. R.; Ante, H. H.; Armstrong, J. W.; Arnold, E. F.; Avery, C. H.; Atkinson, R.; Babcock, A. B.; Bagshaw, J.; Baird, E.; Ball, A. S.; Ball, Walton; Bransley, J. C.; Barbour, F. W.; Bean, H. G.; Beaton, D. W.; Belton, D. W.; Bransley, J. C.; Barbour, F. W.; Bean, H. G.; Beaton, D. W.; Belton, D. W.; Bell, C. B.; Black, W. A.; Bothwell, J. A.; Boyle, L. F.; Bradley, J. A.; Brooks, C. E.; Broughton, A. J.; Butler, J. A.; Campbell, E. H.; Canning, W.; Capon, T. J.; Chambers, J.; Chapden, C. G.; Clark, M. V.; Clark, Harold; Clarkson, P. E.; Cole, H. M.; Conway, H. R.; Coon. W. H.; Cole, F. L.; Coram, G. H.; Coram J. W.; Conboy, F. J.; Corrigan, C. A.; Cevey, Geo.; Conway, H. R.; Cowan, W. A. Cowling, T.; Coyne, N. S.; Crockett, J. R.; Culver, L. T.; Cummer, W. E.; Currie, T. A.; Cunningham, H.; Dalrymple, W. A.; Davison, T. R.; Davison, T. R.; Davison, T. R.; Davison, T. R.; Cunningham, H.; Dalrymple, W. A.; Davison, E. A.; Drake, H. C.; Duff, J. H.; Duplon, R. A.; Eaton, C. L.; Edwards, A. J.; Ellis, W. A.; J. H.; Dunlop, R. A.; Eaton, C. L.; Eaton, H. E.; Edwards, A. J.; Ellis, W. A.; Elliott, A.; Elliott, O. A.; Elliott, W. F.; Emmett, Geo.; Fife, B. O.; Fisher, R. E.; Fisk, G. V.; Floyd, S. T.; Frawley, G.; Frawley, S. L.; Garbutt, H. R.; Garsby, F. L. Garbutt, P. B. C. Garbutt, H. R.; Garsby, F. L. E. L.; Gardiner, B. P.; Godfrey, R. J.; Gox, George; Graham, T. H.; Grant, E. A.; Grey, S. B.; Grieves, G. W.; Gunton, G. A. G.; Halloran, H. H.; Hartford, H. A.; Grey, S. B.; Grieves, G. W.; Gunton, G. A. G.; Halloran, H. H.; Hartlord, H. A.; Hertel, A. H.; Hillker; Hoag, H. W.; Hoffman, R. W.; Holmes, E. W.; Holmes, H. A.; Hord, A. M.; Howe, F. L.; Hume, G. G.; Husband, F. C.; Ingram, J. W.; Irwin, J. E.; Irwin, J. T.; Jones, F. H.; Jordan, G. D.; Joynt, G.; Kates, M.; Kelly, C. J.; Kingman, G.; Knight, F. R.; Kruger, L. F.; Laidlaw, M. L.; Lapp, Jack; Lavine, J. J.; Law, Fred; Lawrie, N. M.; Lee, G. A.; Lehman, E. J.; Lenty, H. D.; Loucks, F. S.; Lowrey, W. M.; Lundy, W. E.; Madill, W. S.; Mallory, Fred; Marshall, John; Marshall, T. R.; Marshall, R.; Mason, A. D. A.; Matheson, W. A.; Model, S.; Montgomery, R. J.; Morton, G. V.; Mayer, M. A.; Mills, Charleton; Milne, M.; Mullin, A. E.; Murphy, M. J.; Murray, G. S.; Mahoney; Murton, Milne, M.; Mullin, A. E.; Murphy, M. J.; Murray, G. S.; Mahoney; Murton, F. O. H.; McCartney, C. F.; McClean; McDonald, W.; McDonald, J. W.; McDonagh, A. J.; McGill, T. H.; McKim, H. A.; McLaren, S. W.; McLean, C. A.; McLean, Gordon; McLaughlin, R. G.; McLaughlin, J. P.; McLeod, J. M.; McGahey, R. J.; McGill, T. N.; McGowan, E. S.; MacDonald, William; MacIntyre, J. M.; MacKay, A. W.; MacLacklan, J. P.; MacMahon, Fred J.; McRae, M. F.; McTaggart, J. A.; Nicholls, B. F.; Noble, G. W. K.; Pair, L. R.; Paul, E.; Paul, G. S.; Perkins, T. F.; Perdue, G.; Pearson, C. 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W.; Whaley, A. F.; Wickett, W. C.; Wilkinson, J. E.; Wunder, W. M.; Willmott, W. E.; Wilson, G.; Wood, A. D.; Woods, W. J.; Wollatt, S.; Wylie, T. H.; Wright, F. J.; Wurts, W. B.; Zeigler, O. H.; Zimmerman, E. R.; Zimmerman, G. F.; Zinkan, E. J.; Trenton: Simpson, J.; Truro: MacArthur, C. S.; Uxbridge: Granton, W. T.; Walkerton: Dixon, E. R.; Westboro: Thompson, F. L.; Welland: Grassie, J. G.; Waterloo: Eckel, S.; Watford: Hecks, George; Woodstock: Welland: Grassie, J. G.; Waterloo: Eckel, S.; Watford: Hecks, George; Woodstock: Davidson, I.; Douglas, N. S.; Wilson, A. H.; Heath, V. L.; Windsor: McIntyre, D. M.; Brehn, C. E.; Hassard, A. G.; Waterford: Anderson, J. L.; Weston: Roos, H. C.; Wellington, Bradley: A. O.; Wallaceburg: Weise, F. A.; Campbell, A. G.; Wingham: Ross, G. H.; Howson, G. W.; Winchester: McKeown, G. F.

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#### Nova Scotia

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#### QUEBEC

Sherbrooke: Bloomfield, J. S.; Hammel, Phillip.

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Vol. XXXIV

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No. 10

# Dental Advertising

Of recent years some dentists in Toronto have been advertising in the daily papers in a manner un-becoming to the dignity of a profession like dentistry. As time has passed more and more of this "improper conduct in a professional sense" has been practised. The form of advertising has changed from that of bragging about the advertiser's skill to those methods followed by large stores who sell thirty-five pairs of boots between eight and nine o'clock in the morning at a ridiculously low price. This is done to get a number of people in the early morning who may buy other things and to get business started for the day. People who consult such dental advertisers at 8.45 get a premium. Another scheme is to advertise that a hundred sets of some special sets of teeth have been purchased at a low price and while they last artificial teeth will be sold for twelve dollars a set.

All this kind of advertising has for its purpose the attracting of those who need dentistry done. This is made the more attractive when it is stated that some dentists charge fifty dollars for a similar set. Any advertising which depends upon the smallness of the price of the article sold for

its success must be looked upon with suspicion especially if the purchaser does not know the value of the article advertised. On the whole everybody must expect to pay what a thing is worth and if a dentist makes artificial teeth he expects to be paid for them or he would not make them. Artificial teeth cannot be made any more cheaply between eight and nine in the morning than at any other time of the day. It costs the same on Tuesdays or on Saturdays. Having bought a number of sets of teeth at a low cost has little to do with the cost of a denture. What difference does it really make on a \$10 or \$20 or a hundred dollar denture whether the porcelain teeth in them costs a dollar or seventy-two cents. The chief cost in any dental service is the skill. Such advertisers have no special skill to give away for nothing. Most of them are in a business, not in a profession at all. They receive payment for goods delivered not fees for services rendered.

The Discipline Committee of the Board asked three offenders to appear before them to show cause why their licenses should not be revoked for such advertising. The defendants were represented by Counsel and reporters from the daily press. It was held that the Committee failed in its charges because it did not at the outset prove that the accused had inserted the advertisements. Counsel for the Committee held that such proof as the signed advertisements was sufficient.

The daily press with its usual business acumen made capital out of the proceedings of the Committee. They made it appear that the cause of complaint against the accused was the lowness of their charges, while, as a matter of fact, there was absolutely no mention of fees whatsoever in the first case, and in the second the accused said someone had charged \$300 for a denture which was promptly challenged by the committee. The verbatim report contains no reference to a charge against the accused for advertising small fees. This statement in the press was made out of whole cloth by the reporters. Then along comes one of our best weeklies with an article about schedule of fees, closed corporation, etc. We may state for their benefit that there is no schedule of fees in dentistry.

Lawyers, physicians, engineers, plumbers, publishers, and other trade unionists cannot understand the dental profession who have no fixed fees.

Many of the newspapers of the province have taken the

opportunity to attack the dental profession ostensibly because of the fees they charge but in reality because they do not use their columns for fire sales of teeth. One weekly gloated over the fact that it had not published an article of information on the care of teeth sent out by the profession because it was not accompanied with a cheque to cover printing charges. Such an editor cannot see past his own nose. By some kind of back-action reasoning, he imagines that dentists will in some way benefit financially if they give out such information as will make it possible for people to prevent diseases of their own teeth.

The creation of a false impression in the public mind of what occurred at the investigation by the press for its own benefit is in the long run poor business.

If any dentist will write to Dr. Gordon McLean, Bloor St. East, Toronto, he may have a copy of the evidence taken at the committee meeting in which he will get a correct statement of what occurred. The Committee is not guessing about what to do. It is following the best legal advice and the procedure followed in similar cases tried abroad. There is no question of fees either large or small up for discussion, it is simply a matter of improper conduct in a professional sense.

# **Editorial Notes**

The attendance in the earlier years at the R. C. D. S. has fallen off markedly in the past two years. The present first year of the five year class will not reach fifty members.

It is a marvelous thing that some dental students do not write on the D. D. C. examinations when they have their work up for their College examinations. Almost daily one hears of some dentist who wishes to move to Ontario from some other Province or from Ontario to eastern or western Canada but finds that he has difficulty in getting a license to practise.

The practitioners' course given during the first two weeks of September by the Royal College of Surgeons was not as largely attended as was expected, but when all factors are considered it perhaps was a great deal more effective. It is a question in the minds of many if the spring season about the time of the Ontario meeting would not be a better time than Exhibition week,

Dr. M. B. Mallory and his son Dr. Fred Mallory have just returned from a trip abroad. They had the experience of an air trip from London to Paris.

The Dominion Dental Council Hall examinations are now being held in such places in Canada as there are candidates enough to warrant the expense.

The National Dental Hospital, London, is the recipient of a bronze bust of the late G. V. Black, the gift of North Western University. Dr. Arthur D. Black was present at the presentation.

Dr. C. N. Johnson is writing a series of articles on fortyfive years in the practise of dentistry. The last one describes some interesting side lights on the life and character of the late G. V. Black.

The Department of Public Health of the Saskatchewan Government has purchased ten paintings from Dr. V. Rondeau of Rouleau, Sask.

They illustrate the hygiene of the mouth under the following titles: The care of the teeth, dentition, the progress of decay, diet in relation to decay, pyorrhea, malocclusion, and normal occlusion.

Instructions will be written under the paintings and they will be exhibited at the Regina and Saskatoon fairs—as part of a public propaganda on the hygiene of the mouth.

The late Sir Wm. Osler said: "There is not one single thing in preventive medicine that equals mouth hygiene and the preservation of the teeth."

Therefore this propaganda ought to be of some benefit to the people of Saskatchewan.

- SITUATION WANTED—Dentist, graduate R.C.D.S. 1900, wants situation for five months beginning Dec. 1st. Can take full charge of office or would work as assistant. Address Dominion Dental Journal, Box 3.
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Dr. F. P. Moore, Hamilton, President Ontario Dental Society.

# Dominion Dental Journal

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No. 11

### ORIGINAL COMMUNICATIONS

# Ontario Dental Association President's Address

F. P. Moore, D.D.S., Hamilton, Ont.

Gentlemen:-

It is my privilege to address you at the conclusion of my year of office as President of the Ontario Dental Association. I desire to express on behalf of the Ontario Association our deep feeling of gratitude to the Canadian Association and to our distinguished Colleague, who as President of the Canadian Dental Association has just addressed you, and to the members of the Dental Profession representing every part of our broad Dominion, who have encouraged us by their attendance at this joint Convention. I say on behalf of myself and my fellow-officers "WELCOME."

Our profession in common with others, and following the general trend of business, has experienced a very trying condition of affairs during the past few years. This is largely due to the uncertain financial and economic conditions throughout the world. But I am glad to say that we in Canada feel that matters have made a definite improvement of late,—that broadly speaking "Business is better, not very much better, but better." We may now look forward with confidence to a gradual but very real improvement, and an early return to those normal conditions which are so essential to the progress and welfare of the people.

But we must all do our part in connection with our own profession, to bring about the results so devoutly to be wished. The problem of our profession is a National one, and a comprehensive National scheme is required to cope with the present Dental situation. A beginning has been made, which at least is a recognition of the existence of the problem, and of its menace to Public Health.

It is not my intention to outline any special scheme, but it is well that we should consider the problem of the prevention of dental disease from three important standpoints:—

1st.—The need for a widespread recognition of the fact that dental disease is a harmful thing, and along with this a knowledge of the ways in which teeth are destroyed, and the means by which they may be kept healthy; and to spread widely this information that through this knowledge of the parent, the child may be relieved of dental disease.

2nd.—The further extension and systematization of school dental inspection and treatment, including children

of pre-school age.

3rd.—Adequate remedial dental treatment brought within the reach of all, and a standardization of methods that will bring results and a greater confidence in the claim of our profession to be a necessary adjunct to Public Health needs.

Much has been done in Canada in the matter of the Public educational feature. The ever increasing number of school clinics, the provision of clinics in Sanatoria, Hospitals and Industries, and the remarkable statistical records available in consequence, are some of the more definite good results.

Without desiring in any way to reflect on the many splendid workers in the Cause of Health generally, may I suggest, that very careful attention be given to the effects on the enthusiasm of the workers, (and naturally on the results of their work) if in the extension of dental service, the workers be hampered by the sometimes well meaning, but unpractical, restrictions which may result from the placing of such clinics under the direct control or authority of one who is not a dentist. It is admitted that there is need for executive control, but in the well meant zeal of many Departments of Health, the desirability of permitting to the Services composing it, the necessary autonomy to encourage them to give their best effort and to progress along what they know to be the proper lines, is too often overlooked.

In this connection it is sufficient for my point to remind you, that until the Canadian Army Dental Corps became a distinct unit of the C. E. F., it was an ineffective body. Had that recognition not been conceded, and its members encouraged by the consequent latitude afforded through a trained directing head, the story of the C.A.D.C. would not have been the glorious page that it is in the annals of the

Canadian Expeditionary Forces.

Unfortunately our Profession, in common with others, suffered greatly through the War. One of the serious difficulties that arose was the inability of that splendid body, the Ontario Oral Hygiene Committee, to meet the Public requests for practitioners for private practice and for school Dental service owing to the absence of so many men serving in the Dental Corps, and by reason too, of the gradually increasing demand upon those remaining for dental service among the civilian population.

More recently there has been a very altered situation in our profession. With the lessened demand for dental service, the inability of many to pay for that service, and the re-establishment in private practice of those of the Dental Corps discharged from military service, it now becomes very necessary in the public interest that the Oral Hygiene Committee of our Association should again take up their great work of educating public bodies in the need of good teeth and the relationship between good teeth and good health. Our brethren across the line are doing a good deal in this way, aided considerably by the Department of Education of some of the larger cities, and by at least one of the great Insurance Companies. May I suggest that by means of bulletins, public lectures and through the ever available generosity of the press, this work should be energetically carried on, stressing particularly the acknowledged fact that the real work of the Dental Surgeon to-day is the Prevention of Dental Disease. To accomplish this it is necessary to take the public into our fullest confidence. To a very great extent it is in the hands of parents to ensure for their children that most priceless boon "a sound set of teeth," without which children cannot hope to have that physical condition which will permit them to compete successfully in the various walks of life.

Health problems are everywhere being discussed, and everywhere there is an inclination to listen, and to lend aid where but a few years ago no encouragement whatever was available. Undoubtedly there are now more who know that—

"It so falls out
That what we have we prize
Not to the worth
Whiles we enjoy it, but being lacked
and lost
Why then we ken its value."

Undoubtedly the war, notwithstanding its ill effects, has furnished some measure of compensation in the spreading of a knowledge of dental conditions, their effects on the system and the possibilities of remedy. In the records of the Canadian Army Dental Corps can be read the unhappy story of neglect of the teeth and the serious consequences therefrom. And in the records of the work done by that splendid Corps can also be read a growing public appreciation of our profession, greater co-operation between the professions of Medicine and Dentistry and a spreading of the knowledge of Oral Hygiene by those who have been helped.

Undoubtedly the work of the C.A.D.C. and the knowledge of that work made known throughout Canada, has focused the attention of the people of the Dominion upon the dental profession to an extent, which could not have been accomplished to the same extent without the unfortunate opportunities of that dreadful occasion. This was the one great contribution made by those who served in the C.A.D.C. and the knowledge of that, may to some extent, in the great Law of Compensation, be taken as a fitting memorial to those of our profession who died in the great cause.

"They shall not grow old
As we who are left grow old,
Age shall not weary,
Nor the years condemn,
At the going down of the sun
and in the morning, we shall remember them."

It will be your good fortune to-day to hear from one of our colleagues, whose part in the work will be associated with the Dentistry of the war, as long as the history of Dentistry in Canada shall endure.

I am glad to be able to assure you, gentlemen, of the continued advance in research work on behalf of our profession. The establishment of schools for graduate studies, and the financial assistance accorded all kinds of works of research not only by Governments but by great Industrial and Financial Bodies is most encouraging. It is undoubtedly upon the results of research that we must depend for the furtherance of the knowledge necessary to keep pace with the growing requirements of our own as well as other professions.

It is not generally understood how far-reaching the effects of scientific investigations may be upon the average person. It seems a far cry from the accurate measurement of length to the development of an improved dental amalgam; yet this is just what has occurred in connection with some of the recent work of the United States Bureau of Standards which found it desirable to determine the ingredients, which would make up the best quality amalgam filling, having in mind the possibility of coefficients of expansion differing widely from that of the tooth substance. The results of this Bureau's work have been embodied in a formula which was made part of the specifications for this material, of the War Department of the U. S. A. This is but another evidence of the growing need for Standardization of methods.

The Canadian Dental Research Foundation, the official Research body of the Profession, will report much success during the year. Organized as it is, in a most democratic fashion, (its Directors consisting of two representatives of each Provincial Dental Board in Canada, and two representatives of the Canadian Dental Association) it has a great work to do. Its effort extends over a wide scope of operations and it has a flexible executive capable of adjusting itself to all circumstances.

I ask of you that you subscribe generously to this splendid work, and that by your encouragement of those directing it, you may place it upon a strong and lasting basis. This will bring to those responsible for its formation the grateful appreciation of the many who are to follow us. To make true progress in the future we must take the past with us for reference and as a guide. We cannot begin from to-day. The outlook must be backwards as well as forwards, if past error is to be avoided. Retrospect is undoubtedly valuable. To know what is and has been permits us to rightly understand what may be and this is a basis for research. We owe much to those pioneers of our profession, who so long laboured in an unappreciative age, more or less misunderstood, but who have made more easy the way for us, their disciples. It is for us to further improve our profession by the discipline and standardization of our studies, by the extension of the period of undergraduate study and by improved standards of requirements for practice. It is only in this way that we can ensure to the public the service of qualified men.

We may, I think. 'eel justly proud of the continued development of the Royal College of Dental Surgeons. The College has fully considered all of the foregoing, has been responsible for the lengthening of the course of dentistry to five years, and has also recognized its own responsibility towards its graduates. The need for post graduate service exists now as never before. The proper organization of this work will bring about the desirable result of placing in the various districts of Ontario, where the need exists, trained graduates with a field available for the exercise of their talents, and with a recognition of their duty towards their college and society in general.

We have steadily progressed from the early days of John Hunter, the founder of the English School, (when the subject of dentistry was treated philosophically rather than practically) and from the year 1803 when it would appear that the practice of making teeth and cleaning them was in the hands of silversmiths or jewellers. It was only in 1855 that the National Convention of Dentists was organized and the first annual meeting held in Philadelphia; and it is only within a bare century that dentistry has taken the rank of a distinct profession. And yet we must remember that the ancient Egyptians understood phases of the art, (commonly regarded only as inventions of modern times) if we are to believe the evidence of the ancient tombs of the Egyptians showing artificial teeth of ivory or wood and some fastened on gold plates. And we must continue to progress, and by your intelligent co-operation we in Canada will at least equal the highest standards of the world.

The programme of this joint Convention is a most comprehensive and extensive one, reflecting much credit on those responsible for its preparation. Very great care has been exercised in the matter of permitting members who expressed a desire, to select those Clinics, which most appeal to them, with proper provision for their attendance accordingly. The character and ability of those in charge needs no comment on my part, and I am proud indeed, at the conclusion of my term of office to be able to present to you,—a combined membership of the Canadian and Ontario Societies,—such a splendid opportunity for furthering the knowledge possessed by the leaders of our profession, who are to be with us during the next four days. I am sure that the results of this Convention will prove most stimulating. The

knowledge acquired, the friendships renewed and made, and the publicity which will come from it, can but reflect their force in years to come in the character, quality and result of all our work.

It has been a great pleasure to have worked with my Executive during the year and to have had some part in the work of the Convention Committees. I cannot close without expressing my sincere appreciation of the spirit of unselfishness and desire to serve, that has marked all our meetings, and I am sure that the result of the Confention will have justified your Committee's ambition that this be the greatest convention that our profession has ever been privileged to attend.

I desire to thank His Honour, the Lieutenant-Governor, and our good friend, His Worship, the Mayor of Toronto, for their cordial words of welcome and to assure them that we, as a body heartily congratulate both of them on having attained to the distinguished offices which they are now filling with such marked ability.

# Malocclusion as a Factor in Deformity

Tom Smith, D.D.S., Langdon, North Dakota

Read before the joint convention of the Canadian and Ontario Dental Associations, Toronto, May, 1922.

That there is a definite plan in nature to develop to perfection there can be no doubt. Every natural process has a definite plan that is beautiful, if not interfered with. Let us take for example the maple leaf. Every perfect maple leaf has a definite geometric balance. There is no mistaking its proportions. When it is perfect it is beautiful. When its development is interfered with by sting of insect, lack of nutrition or the unbalancing of nature's plans from any cause, it loses its naturally beautiful proportions and becomes ugly just to the same degree that it falls short of development to the definite mathametical balance. This applies not only to leaf form but also to leaf arrangement. As far back as 1878 Schwendener (6) published The Mechanical Theory of Leaf Arrangement and later Kerner and Oliver (2) discuss and prove that even the distribution of leaves on the circumference of the stem is entirely a mathematical arrangement.

This same idea may be followed throughout all nature. The study of chemistry proves that nature is not haphazard but absolutely definite and balanced to the most minute detail of its finest subdivision. In physics we find this same condition and a fine example is that of the crystals. In astronomy the balance is so perfect that the appearance of comets may be foretold many years in advance and to the accuracy of the fraction of a minute. In fact this great natural law of balance is universal. The presence of a Great Divine Personality with a definite design back of all this is apparent. It is evident that all things, including man, were created perfect. Our Creator being perfect must of necessity have made perfect creations. He is recognized by many as the Great Geometrician and rightly so. Through abuse or disregard of definite laws much deformity has been caused and it would appear that man has fallen from physical perfection to his present condition.

In all nature we find that if there is a lack of conformity to the ideal or perfect the thing loses beauty and becomes ugly. All beauty has a mathematical basis. The ideal or beautiful is attained by function developing well-balanced geometric proportions. If function is interfered with it must follow that development to the ideal will be interfered with and there will be a consequent loss of balance and beauty.

With the foregoing as a basis it is most logical to assume that there is a definite plan in nature to develop perfect teeth with perfect occlusion, in human beings, and that there will be a definite mathematical plan underlying this whole development. If function is not interfered with, not only the occlusion and teeth but all the masticating apparatus and its associated structures as well as the whole cranium will be developed to a symmetrical harmonious relationship and upon a geometric plan (4).

It was Dr. Bonwill (4) who gave us the first scientific dimensions of which we can make practical use in the development of this theory, that of the equilateral triangle of four inches from condyle to condyle and from the condyles to the mesio-incisal angle of the lower central incisors. This triangle is not always equilateral for the reason that function and development have not always been perfect.

Dr. Monson (4) has gone farther and builds his principles of occlusion upon a geometric basis of calculation which carries with it absolute proof in every detail. This basis of his calculation is that of the figure of a sphere of approximately eight inches. The radius of this sphere is, of course, four inches.

The occluding surface of every tooth in the normal jaw will be found to be tangent to the radial line of the long axis of each tooth.

One of our chief troubles is that we have been made to study detail phases of anatomy of the teeth and of their deformities and we have neglected the study of the teeth and associated structures collectively. The result has been that no matter how fine our detail operations of repair have been they have not borne sufficient relationship to the masticating mechanism as a whole.

The bony structure of the jaws and of the whole body is built up in accordance with the amount of stress the muscles place upon it. In other words, the bony structure develops in proportion to muscle function. "Food and function equal force and form." (4) Food is the determining factor of function. Proper development to the ideal in the face and cranium must come through proper food and function.

Plate 1 shows the bones of a disarticulated skull. Figure 1 is an upper view of this mandible. This is as perfect a mandible and dentition as one may find. You will observe the Bonwill triangle is equilateral, each of its three sides being four and one-eighth inches or 105 mm. These measurements were taken from the center of the condyle head as that is the rotation point. Each of the sigmoid notches is one and three-

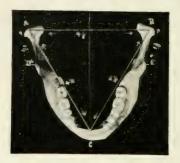


Illustration No. 1

eighths inches or 35 mm. in width. In fact the various measurements of this mandible show it to be almost perfectly balanced. When this mandible is properly mounted upon the correct instrument the fact is demonstrated that the center of applied force, or the center of the sphere upon which this occlusion is developed, is equidistant from each and every



Illustration No. 2

cusp and is also equidistant from the center of the condyle heads. In figures 2, 3 and 4 the teeth of the maxillae are occluded to those of the mandible: Figure 2 is a front view, Figure 3, a side view, and Figure 4 an upper view. It will be observed that the maxillae are developed to the mandible and accurately balanced. Figure 5 is an inner view of the two parietal bones and here again we find accurate balance. In

Figure 6 there are four bones all viewed from the inner side. Here we have another aspect of the two parietal bones which again shows their correct balance. The two upper bones are the occipital and frontal and their symmetry is perfect. In studying all of the bones of this disarticulated skull it is truly wonderful to observe their balance and beauty. This development is, of course, the result of proper function, and proper function is impossible unless all teeth are present and in correct occlusion.



Illustration No. 3

Plate II is made from a skull that I was fortunate enough to find in Lincoln, Nebraska, last January. This skull is very asymmetrical. The reason is apparent. The subject had lost both lower left first and second molars and the third molar was erupted in such an abnormal position that all molar func-



Ilustration No. 4

tion was lost on the left side. In Figure 7 we view this mandible from above. It is very patent that the loss of the left molar function resulted in all work being forced upon the right side and consequently the development of the mandible was greater on that side. Not only the mandible but the maxilla and all of the cranial bones are much more developed on the right than on the left side. Referring to Figure 7 we find

that the Bonwill triangle is not equilateral but scalene: the base is 93 mm. or 3 11 16 inches; the left side is 105 mm. or 4 2 16 inches and the right side measures 116 mm. or 4 9/16 inches. It is interesting to note that the left sigmoid notch measures 29 mm. and the right sigmoid notch measures 37 mm., making just about one-third of an inch difference. Fig-



Illustration No. 5

ure 8 is a front view of his skull and plainly shows the excessive development on the right side. Figure 9 is a view of the base of the cranium. Here again we find the development stronger on the right side than on the left and especially in the zygoma. Figure 10 illustrates the cranium from above. Measuring from the medial line we find the greatest left lateral width to be 63 mm. or 2 1/2 inches and the greatest right



Illustration No. 6

lateral width to be 80 mm. or 31/8 inches. The circumference of the skull is 19.3.4 inches, the right side being 10.1/4 inches and the left side 9.1.2 inches. After studying these measurements and illustrations carefully what more convincing arguments may we present for proof of the statement, "Food and function equal force and form" (4)?

Allow me to again quote from Dr. Monson (4): "For the purpose of study it is necessary to obtain as perfect a skull

as possible, one having a complete set of natural teeth. I advise a subject that has lived to the age of thirty or thirty-five years as one of this age would be more likely to have facets worn on all of the teeth denoting full function of mas-



Illustration No. 7

tication (Plate I). An individual having lost teeth on one side of his mandible would naturally have an excessive function on the opposite side, and in this manner, both muscular and osseous structures are excessively developed, throwing the mandible to one side (Plate II).

Keep in mind that in the ideal, the long axis of every tooth points to a common center, which is the center of the sphere



Illustration No. 8

upon which the occlusion is developed. The greatest crushing surface, the occlusion, is at right angles to the long axis of the teeth (4). It must follow that the total action of the muscles converges to this same common center. This group of muscles demonstrates the physical law that to every action there is an equal and opposite reaction. The radial point of this sphere must be the center of applied force as all of the teeth converge to it.

Plate III is from photographs of the mandible and maxillae of the ideal skull mounted upon the mandibulo-maxillary instrument. These are so mounted for the purpose of showing the conformity of the teeth and their supporting structures to the figure of a segment of a sphere. These and all other illustrations and drawings used in this paper were made under the direction of Dr. L. L. Eckman, of the Monson Re-



Illustration No. 9

search and Clinic Club, and have been copyrighted for the club and are here used for the first time.

Figure 11 shows the mounted mandible in perspective and its relation to the condyle cord. Figure 12 shows the general conformity of the spherical pyramid from periphery or occlusion to the vertex. Figure 13 illustrates the three-sided pyramid with the Bonwill triangle as the base. The



Illustration No. 10

angles of the Bonwill triangle are on the periphery of the sphere and are all equal. The angles at the vertex are in the center of the sphere and are equal to those of the Bonwill triangle. In Figure 14 note the general conformity of the bones forming the crushing base. Figure 15 is a segment of

a sphere. Note the conformity of the cusps and condyles to the base of the spherical pyramid. Figure 16 shows a front view of a pyramid with the Bonmill triangle as its base. The dotted line is from condyle to condyle the same as in Figure 13 but taken at a different angle. In Figure 17 we see the long axis of the teeth touching at the common center. Figure 18 is similar to Figure 15 but with the superior maxillary bones or crushing base in proper relation to the mandible in centric occlusion. Note the general pitch of the teeth, from a side



Illustration No. 11

view, pointing to the center of the sphere. The large circle is in the medium line of the skull. The free end of the upper dotted curved line passes through the condyle head, consequently this point is two inches closer to you and hence appears higher on the sphere.

It is well to remember that the Bonwill triangle is not al-



Illustration No. 12

ways an equilateral triangle of 4 inches. However, if the occlusion is developed upon an 8-inch sphere, whether the triangle be equilateral, or not, the sum of the three sides will be 12 inches. In other words, the sum of the three sides of the Bonwill triangle, whether it be equilateral, isosceles, or scal-

ene, divided by three is equal to the radius of the sphere upon which the occlusion is developed. The great majority of cases will have a 4-inch radius although I have one patient with a radius of a trifle over 4 1/4 inches.

The technic of transferring the facial dimensions is very accurate and the check bites prove or disprove its correctness so that any mistake may be easily detected and corrected.

The foregoing principles of occlusion I have gleaned from Dr. Monson, either from his writings or from personal con-



Illustration No. 13

versation. While they are more or less expressed in my own language and with my own illustrations the principles are entirely his.

It is doubtless true that faulty occlusion is more productive of diseases of the mouth and teeth than is any other one factor. There is a growing opinion that the members of the dental profession are more responsible for the prevalence of



Illustration No. 14

faulty occlusion in patient's mouth than is any other single cause. Link these two facts together and we see plainly that our profession has a very significant condition facing it. We may well ask the question: How long do we intend to trifle with this important problem of occlusion?

If we give this problem a fair degree of thought and study we must admit that, unintentionally, we have been wrecking many occlusions by our operations of a restorative nature. This may prove to be the case even in the restoration of a single cusp. We have also been allowing a great many faulty occlusions to escape our notice when it has been or should have been our duty to direct the attention of our patients to



Illustration No. 15

the condition. The difficulty has been a lack of knowledge rather than one of intentional neglect. It is our duty to make a careful study of the occlusion of every patient who presents for examination, just as much as it is our duty to examine the mouth carefully for dental periclasia. When the occlusion is found to be faulty we should direct our patient's attention to it and to the numerous disorders which may be attendant upon it just the same as we do when we find a condition of periclasia present. The patient has this service due him and it ought to be a criminal offense if we fail to inform our patients of these facts if we are aware of them.



Illustration No. 16

It is a fact that each cusp has a definite relationship to each of the other cusps in both arches and to the masticating apparatus as a whole. This should make us pause and consider the necessity for checking up the occlusion before any restorative operation is initiated. We should also observe the proper methods of correcting and maintaining the occlusion during these operations so that a harmonious result may be obtained and a real benefit rendered our patients. When an operation involving even a part of an occlusal surface of a tooth is contemplated the operator should not only have a definite understanding of the basic principles of occlusion but he should incorporate those principles into the operation.

There is considerable confusion in the use of the term "occlusion," or in the way it is used. One would very naturally think that the term "normal occlusion" referred to a



Illustration No. 17

perfect occlusion. However the term "normal occlusion" is applied to the teeth when in centric occlusion. It must be remembered that teeth may be in normal occlusion when in centric position and that these same teeth, in function, may show considerable obstruction to functional range. In other words, a patient may have a so-called normal occlusion and



Illustration No. 18

still have a decided closure of the bite involving the loss of facial dimensions and also in function there may be a very decided case of traumatic occlusion owing to the fact that a cuspal interference exists.

#### STUDY CASTS

It is becoming more apparent to many of us that study casts and mouth surveys should be made of all our cases as a preliminary step to the actual operation. We have an instrument now which will permit us to mount our casts in such a way that they will accurately reproduce ever movement of the jaws from which these casts were made. With this advantage we are surely no longer in a position where we can afford to neglect this most important phase of dentistry. This procedure may seem slow and awkward at first but with practice in the technic the slowness disappears and the awkwardness develops into a definite skill which affords wonderful opportunities to study the functional relationship of the units of mastication. The fact that study casts, when properly obtained and correctly mounted, represent the position of each tooth when at rest as it is held or hangs in the arches when the mouth is open, places this technic in a class by itself.

It is claimed that even under normal conditions the teeth will depress into their sockets one-fiftieth of an inch under the force of mastication (1). They will shift in their position more readily under occlusion, either in centric position or in functional range, when trauma exists in the periodontium and especially if a loss of fixation obtains in any of the units (8). This very condition is one of the important factors which makes it impossible to diagnose the occlusion by clinical observation. The reverse condition is found with mounted casts for here we have a rigidity existing both in the plaster teeth and the instrument upon which they are mounted, permitting easy detection of cuspal interference to functional range. This not only assists in making the diagnosis of the occlusion more simple but allows of a more ready and accurate correction. In fact the whole scheme of mounted casts is vastly superior to that of clinical observation. It allows of a full outer view or a full lingual view at one time and permits of a better opportunity to study the occlusion as well as giving us very fine records of the case.

#### VARIOUS CASES

Let us review some of the cases which are frequently coming under the observation of the dentist. In the case of a patient seeking our services in the restoration of a single occlusal surface or a part of an occlusal surface, are we

going to bear in mind the many details of a very fine operation with the exception of the most important? Are we going to complete this operation so that in centric position its occlusion appears perfect while in functional range it will cause trauma to the supporting structures or periodontium and eventually break these structures down or cause irreparable injury? This condition is well illustrated in a case from my own practice, where a very shallow mesio-occlusal filling had been placed in an upper second bicuspid. The case came to my notice about one year after the operation had been made. The operation was good in every detail except the main factor of occlusion. During that year the tooth had lengthened, owing to lack of occlusion, and when as it came into occlusion the wrong plane was established with the result that it came under Class 3 of force application (7) and a wedging process was instituted with the gliding of one plane past the other, forcing the tooth to one side of its socket. The radiograph disclosed a narrow rarefied area in the process between the roots of these approximating teeth, and also a slight thickening of the periodontal membrane. The tooth had lost its fixation to a very marked degree and it was only a matter of a few more months until it would have been necessary to remove it. This particular case is not uncommon but it is frequently noticed. It not only limited the range of occlusion but had a marked tendency to lessen the functional activity of the mouth and particularly that important function of swallowing for the tooth had developed, along with the definite loss of fixation, a considerable tenderness to occlusal pressure. This was aggravated both by the positive and negative pressures applied in the act of swallowing so that this function became of no importance as far as the drainage of the mouth and Eustachian tubes was concerned. After the occlusion had been corrected the patient was taught to swallow properly again and also instructed as to some of the purposes of that Without further instruction or care the soft tissues of this mouth have improved wonderfully. I may add that the looseness of this tooth was not altogether caused by the gliding of one inclined plane past another, but due to the lengthening of the tooth both the buccal and ligual cusps had become points of obstruction to either right or left lateral range.

In reconstruction work such as bridges and partial dentures the tendency to traumatic occlusion is even more marked, for the reason that more occlusal surfaces are being re-

stored and there is, proportionately, more opportunity of faulty occlusion. It is interesting to make full study casts of all mouths in which we find what might be termed excellent bridge work, operations upon very small segments and with the instrument and study the occlusion. It will be found that in the majority of these cases, while they may be in normal occlusion in centric position, there will be prominent obstruction to occlusal range or a lack of occlusion altogether. There is usually more or less obstruction. These high points cause trauma to the supporting structures of the abutment teeth and in time the whole operation is a partial or complete failure. Is it any wonder that the fixed bridge has come in for so much adverse criticism and ridicule? The trouble is not that the good strong abutments will not stand up under proper occlusion but that they will not stand up under the beatings of traumatic occlusion carried down to them from the bridge. Are we to continue this practice of making bridge work, operations upon very small segments and with out regard to functional activity, or are we going to perform operations on our patients taking into consideration the fact that a bridge is not made to fill a very small space in one arch but that it is to restore functional activity to the whole mouth and associated structures? Most of us have been guilty of focusing our attention upon the unit instead of the masticating apparatus as a whole.

Dr. Arthur P. Little (3) has very ably put the case in the following statement:

"We find that since the time of the early Egptians we have been filling spaces in the dental arches with a total disregard for the fundamental principles which go to make up successful reconstruction work. If our reconstruction work is to reach a higher type of efficiency we must consider thought which are essential. As I lookk back upon my own partial denture work I can readily see that my greatest fault was that of narrow vision. The natural result was that I saw in every mutilated mouth an opportunty to make a denture. This was generally considered an end in itself. Instead of seeing the mouth as a whole, instead of realizing the importance of the correct anatomical relationship of the dental arches, instead of recognizing the physiological functions of the mouth I saw only an empty space which a partial denture could close. I had no idea of occlusion. In other words I saw only a small fraction of the situation; I could

not recognize the more important possibilities that present themselves in reconstruction work."

Again, our patients seek full dentures. Are we going to maintain the old standard of opening the bite to the lip lines and arranging the teeth on this same faulty standard? Are we to arrange the occlusion upon unnatural planes and then proceed to the technical part of the operation in the most approved manner! It is doubtless true that the majority of full dentures close the patient's bite at least 3-8 of an inch. Many of the partial dentures have the same tendency but not to such a marked degree. It has been shown us that this closure of the bite leads to endless troubles for the patient (5) trouble such as faulty drainage of the mouth and of Eustachin tubes. Lessened muscular activity for the closure of the bite shortens the distance between the origin and insertion of these muscles and there is a consequent diminution in the tone of the muscles and in the muscle pull. Encroachment of the head of the condyle upon or into the external auditory meatus results in the majority of cases in partial deafness and in a few to complete loss of hearing. This condition also crowds the inside of the mouth. The tongue is crowded back and thereby impairs not only its own function but also the function of the adjacent parts. Many cases of throat trouble and nervousness and doubtless some forms of goiter are caused by the unnatural position these soft parts are forced to assume through closure of the bite.

#### THIRTY-EIGHT CASES OF DEFECTIVE HEARING.

I wish to recall some very valuable data with which Dr. Monson has furnished me. Thirty-eight cases of defec-Of these thirty-eight cases tive hearing were reviewed. eighteen were using full dentures when presented. In all of these facial dimensions were short of normal and in 8 per cent, they were very short. After new dentures were constructed there was an improvement in the hearing of each case. In some the improvement was marked and a few regained normal hearing. In every case the facial dimensions were restored to normal in the construction of the new dentures. Of the remaining twenty cases all had bridges or partial denture restorations of some kind. All were short on facial dimensions and all showed improvement in hearing after having had their teeth removed and full dentures substituted which restored or built up the face to its proper dimensions. The cause of these cases of defective hearing was the encroachment of the head to the condyle upon or into the external auditory meatus or a lessened potency of the

Eustachian tubes due to crowding.

This is only a very small part of the data which has been gathered on this subject. I give this small portion merely to cite some specific cases so that the conditions may be more thoroughly brought to your attention.

#### DEFINITE WORKING PLANS.

It is exceedingly odd that while we all recognize the masticating apparatus in its normal state as such a beautiful and well-balanced machine that we should not consider it as a whole when operating upon it and cease to do piecemeal work. An architect or an engineer always has a definite plan to follow in any construction work. They must know the part each unit is to play in respect to every other unit and to the whole. Why should not we, as dentists, follow this same course? Our properly mounted study casts, must, of necessity, be the working basis. Upon these casts we must plan our operations and upon these or similar casts we should complete our operations.

#### CONCLUSION.

I cannot conclude this paper without again calling your attention to the fact that the big problem which is confronting our profession to-day is that of occlusion. It looks exceedingly large because of the fact that it has been so grossly neglected. What are we going to do? Our patients come to us for service. Are we going to sow destruction in their mouths? We cannot continue the old practice much longer. We cannot relegate it to the specialist for it enters into and is a basic principle of all of our operations. There never was a larger opportunity in the whole field of dentistry than that which the problem of occlusion is offering us to-day. It enters into and is dominant in every branch of reconstruction work. Is it too much to suggest that we study it and apply our knowledge to our everyday work? I believe we cannot do less.

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#### Replantation of the Lower Second Bicuspid

Patient, boy twelve years old. An acute dento alveoler abscess developed at the apex of the lower second bicuspid. The tooth was removed and opened at the apex where a root filling of temporary stopping was made, the socket washed out and the tooth replanted and tied in place. For twelve years the tooth gave satisfactory service although it was slightly out of acclusion because of being shorter than the rest of the teeth. An abcess developed again which was lanced



and an X-ray picture made. The picture shows the gutta percha root filling acting as a dowel holding the tooth in place. There appears to be no root left. The patient dislodged the tooth accidentally while brushing. There was no caries but a crescent of calculus around the neck on the proximal and lingual surfaces. An interesting point to be noticed is the failure of the replanted tooth to keep in acclusion. When it was replanted it was in acclusion with the uppers but at the time of its loss it was three or four m.m. below its companions.

#### Relations between Gingival Irritations of the Teeth and Facial Dermatosis

H. Thibault, D.D.S.

Translated by J. C. Sherman, from the Revue Dentaire Canadienne It happens quite often that we are questioned regarding the relations between dental diseases and other affections of the head. We know something by hearsay of the rather vague relation which exists between the cuspid and the eye. We know by experience that neuralgia in its broadest sense, may have some relation with diseases of the ear, and that the washing of a diseased tooth promotes real relief by getting rid of the congestion. This is an interesting subject, about which we are often questioned. Is there any relation between gingival irritations and facial dermatosis, or in other words have the diseases of the skin as corollaries affections of the teeth, or vice versa? A close study will always lead us to reply in the affirmative, in considering these five proofs in one case of retro-auricular eczema of the left side, appearing regularly each spring with a young girl for about five years.

- 1. Chronological Proof:
- 2. Topographical Proof:
- 3. Experimental Proof:
- 4. Therapeutic Proof:
- 5. Proof à Posterior:

The dental irritation and the cutaneous lesion are synchronous.

Irritation of the lower wisdom teeth was reflected in fact with a marked partiality, in the occipito mastoid region.

Trauma produced by relieving by incision the constriction of the tooth, reflected in the condition of cutaneous lesion which is temporarily relieved. The rapid decline and healing of the eczema in a few weeks, without local treatment following dental intervention.

The non-reappearance of the eczema each spring which had been its habit for five years.

The causes of the disease of the skin can be traced to three chief causes: —Internal Cause, External Cause, State of reception of the skin. In eliminating the external cause which without doubt can attack in time the teeth and the

skin—trauma, applications of too violent escharotics, arsenic in too great a quantity, attack the neighbouring alveolar abscess tissues and can by successive infection bring on skin diseases.

In eliminating the state of reception of the tissues in the presence of organic diseases—the state of general decalcification or of anemia has some effect on the whole system—sickness attacking the individual entirely, as in syphilis, rheumatism, nephritis, or transitory condition without being pathological, having debilitating consequences such as pregnancy and menopause. There still remains an unexplored field in the study of the internal cause of skin diseases. It is certainly these that we are preferably stressing. The internal causes can be due to infection or denutrition of cellular tissue.

Bacterial Infection

Streptococci found in dental caries and disease of the skin, can serve as pathogenic agents for one or two reasons. A tooth deeply affected with caries invaded with numerous streptococci can by reason of its nearness bring on skin disease such as in the case of erysipelas.

Erysipelas

This disease which has for its cause a streptococcal infection caused by ulceration of the pituitary membrane can have close relation with dental disease.

Lupus

Mr. Roussean Decelle speaks of lupus overcome in the course of the organism and localized to the right side of the nose because successive irritations accumulated in this region.

Measles

It is also pointed out that measles which are caused by catarrh of the voice and eye, can produce gingival irritation because of the proximity.

Troubles of Nutrition

Internal affections having diet as their cause are often accompanied with dental trouble. Such is the case in Acne, the treatment of which requires a special treatment and care, minute watchfulness of the digestive functions and repair of dental tissue. In the same order of thought we must not forget that arsenic is contra-indicated in cases of eczema.

Alopecia (Scurf)

There still remains, for considerations, the internal causes

of disease caused by demineralization of the system. Such is the case in Alopecia. Dr. Jacquet has shown that this disease has a neurotic origin and is accompanied by dental irritations, we are certain of this point. The formulary observes the close relation between this disease and dental disease, but for want of the formulary we shall have to resort to experience, and it will be interesting to note the results of observations of colleagues, several of whom have been able to verify the relation between scurf and dental disease. Treatment

The treatment of skin diseases, not being in our field. there remains very little to say, but as far as we are concerned it is worth while always to recall the axiom-"Sublata causa tolletur affectus''-- "Remove the cause and you remove the disease." If infection is the cause-disinfect the tooth or teeth, relieve the caries and rebuild the organ; or otherwise, if the affection is caused by demineralization following dietary troubles, you must not remove the tooth, and you must not grind the organ in order to get rid of this sort of network of broken down enamel brought on by absence of mineral salts. Which of us can deny that if the cause is set out the teeth will not take back the necessary salts? Which of us can say that the decalcification following pregnancy does not disappear with the delivery of the child? In case of infection following we should not extract the tooth except as a last resort.

There remains only the case of reception ability, but I had only intended to quote some cases showing the close relation between gingival irritation and facial dermatosis. There still remains to be found out which precedes which—does the dental disease appear first or is it the skin disease? Sometimes it is the tooth which by gradual breaking down destroys the surrounding tissues, sometimes it is the skin which by some sort of infection brings on gingival irritation but discussion of this point is useless.

#### Conclusions

- 1. The dental origin of certain eczemas is confirmed.
- 2. The evolution of the wisdom tooth can be efficient before being apparent.
- 3. The influence of dental irritation created in a point on the head or the neck or the face of the actual zone.
- 4. Dental irritations project into a territory more or less extended, a supplementary excitation.

Montreal, June, 1922.

#### The Academy of Dentistry, Toronto

#### CONSTITUTION

#### ARTICLE I.

NAME.

The name of the organization shall be "The Academy of Dentistry, Toronto."

ARTICLE II.

The object of the Academy shall be

ARTICLE III.

MEMBERSHIP.

Any Licentiate of Dental Surgery of Ontario may become a fellow by paying the annual fee.

#### ARTICLE IV.

Officers.

The officers shall be Past President, President, President-elect, Vice-President, Secretary. Treasurer and Librarian, to be elected as hereinafter provided. The duties shall be those generally assigned to such offices.

#### ARTICLE V.

COMMITTEES AND DUTIES.

1. The Council shall consist of the officers, the chairman of each section, and four other fellows to be elected as hereinafter provided.

The duties of the Council shall be to arrange the programme for the general meetings, to provide for the organization of the different sections; to present to the January meeting two names as scrutineers; to conduct the business of the Academy and report at the general meeting.

2. The House Committee shall consist of three members, to be appointed by the Council. The chairman shall be selected from the members of the Council, the other members may or may not be members of the Council.

The duties of the House Committee shall be to assign places of meeting for the Sections, and to have a general oversight of the housing of the Academy.

#### ARTICLE VI.

MEETINGS.

1. General. Stated meetings shall be held in October, January and April. At the October meeting the Treasurer for the previous year shall present an audited report. At the January meeting two scrutineers shall be appointed after nomination by the Council. At the April meeting two auditors shall be appointed by the fellows present.

2. Special Meetings may be called by the Council at any

time.

3. Sections. Each section shall meet at such times as may be agreed upon by the members of the Section.

#### ARTICLE VII.

#### FINANCE.

1. Members. The annual fee shall be five dollars.

2. Sections. Each section shall be responsible for any expense incurred by that section.

#### ARTICLE VIII.

#### SECTIONS.

1. Sections shall be organized when a sufficient number of fellows make application to the Council.

2. The council shall arrange for the organization of each

section.

- 3. Each section shall elect a chairman and secretary.
- 4. The chairman of each section shall report to the Council on the work of the section.
- 5. The Council shall have a general oversight of the work of the sections.

#### ARTICLE IX.

#### ELECTIONS.

- 1. Not later than the first of February, in each, year the Secretary shall send to each member, (a) A list of fellows. (b) A list of the officers. (c) A blank nomination paper. (d) A list of the present officers.
- 2. Each fellow may nominate one member for each office and four members for councillators.
- 3. The momination papers must reach the Secretary not later than the tenth of February.
- 4. The Secretary shall notify those nominated for each office not later than the fifteenth of February.
- 5. Any nominee may retire by notifying the Secretary in writing not later than the twentieth of February.
- 6 Not later than first of March the Secretary shall send to each fellow a ballot containing the names of those in nomination for each office.
  - 7. Where moré than two candidates are in nomination for

any office the voter shall number them for each office in the order of his choice.

8. Ballots shall be returned to the Secretary not later

than March 15th.

9. Not later than the twentieth of March the Secretary shall send the ballots to the scrutineers.

10. The votes shall be counted by the Hare-Spence

system.

11. The scrutineers shall notify the council and shall report at the general meeting in April.

### ARTICLE X.

The Constitution may be altered at any stated meeting by a two-thirds vote of those present and voting, if the proposed change has been included in the notice of the meeting.

#### The Dental Study Circle of Montreal

It was sometime in the year 1919, during an informal talk amongst two practitioners of Montreal, that a discussion arose as to the advisability of organizing some sort of a study club for the increasing numbers of dental graduates there. They began to realize that many of these men, upon receiving their university degree and entering into the practise of their profession, unfortunately severed their connection with their Alma Mater. They are thus deprived of the mature advice and proper guidance of those men who, during the university course, give the student body the benefit, not only of their knowledge and skill, but also of their practical experience, which not only proves beneficial to them but greatly reflects upon the profession as a whole.

It was the mind of these two men, that at no time was the necessity for proper guidance of these young men more urgent; partly because their numbers were increasing yearly, but more important perhaps, was the fear that some of these young men may be lured on, by the so-called success of those men who commercialize the practice of their profession, to lower their own standing as well as the dignity of

the profession.

Another thought uppermost in their minds was to establish a "Clearing House" where these men could come with their daily problems and difficulties—to establish a centre to which, from time to time, we may invite leaders in our profession, both in and out of our city, who would not only bring to us the best, for the advancement of dentistry, but act as a stimulus to a body of young men for further study, and create a desire to perfect their technical skill.

With these thoughts in view a meeting was called and a few practising dentists responded, thus forming the nucleus of the present "Dental Study Circle" of Montreal. Today our Circle consists of a membership of thirty-six Licentiates of good ethical standing.

We meet on the first Thursday of each month from September to March, inclusive. Every meeting takes the form of a dinner, followed by the speaker of the evening. A general discussion closes the meeting.

The fundamental basis, upon which our "Circle" was organized, is to maintain the dignity of our profession and strive for the highest scientific attainment in dentistry.

With Dr. J. Rubin in the chair, the Circle looks forward to another successful year. Dr. N. Lande is the present secretary.

#### British Columbia Dental Societies

The annual meeting and autumn clinic was held on Friday, September 15, at 4.30 p.m., at 413 Birks Bldg., Vancouver, B.C. The election of officers for the ensuing year resulted as follows:

President, Dr. P. H. Van Dervoort, Vancouver. First Vice-President, Dr. W. S. Watson, Vancouver. Second Vice-President, Dr. A. J. Garashé. Victoria. Secretary, Dr. R. Hall. Vancouver. Treasurer, Dr. R. D. Shortreed, re-elected, Vancouver.

The clinicians and subjects were as follows:

Dr. F. E. Gulick, Prosthodontist, Portland. Table clinic on full Denture Construction, Articulation, etc.

Dr. Treve Jones, Portland, Ore. Table clinic, gold inlay and three quarter crown preparation and construction.

Dr. T. W. Snipes, Vancouver. Table clinic on moveable removable, partial denture construction and the uses of porcelain in dentistry.

Dr. A. J. Thomas, Victoria. Pulpotomy, per Dr. Clyde

Davis' technique.

Dr. E. L. Thompson, Vancouver. Practical Amalgam preparation and filling 'in mouth.

Dr. C. J. Stansbury, prosthodontist, Seattle. Upper dent-

ure technique.

At this meeting special attention was drawn to the Canadian Dental Association meeting to be held in Vancouver, B.C., in 1924. Preparations are already being thought of to make this meeting a great success in the west.

Dinner was then held at 6.30 p.m. in the London Grill,

followed by a large entertainment the entire evening.

Vancouver Dental Society has settled down to hard work after the summer vacation. Study clubs and clinics are all functioning well.

Victoria Dental Society has resumed its meetings after a three months' vacation. At a meeting held September 19 it was decided to appoint a programme committee to arrange for a series of clinics throughout the winter on subjects of interest, including partial and full dental technique, inlay and porcelain work.

#### Dentists' Generous Contribution

As their contribution to the work of "Good Health Week," the Associated Dentists of Three Rivers, Quebec, will gratuitously examine the teeth of all the pupils in the schools of that city.

The thanks of the public are due to the dentists for this generous offer. The examination will begin immediately and will increase the knowledge of dental hygiene which is little understood in the schools.

At the suggestion of Dr. Desjardins, the trustees decided

to allow the examination to be made.

The letter sent to the Board by Dr. Desjardins is as follows:

"It is my pleasure to inform you that by permission of their President, the members of the Association of Dentists of the City have offered free dental inspection of all school children of this city. They have discussed the plan with the Principals of the Public Schools and have decided upon it as their contribution to 'Health Week.'

"In suggesting that you notify the directors of the schools to allow this examination, may I emphasize the great importance of oral health? With your permission the work will begin immediately as it will require considerable time for its fulfilment."

The Fifteenth Annual Convention of the Alpha Omega (Dental) Fraternity will be held in Philadelphia, Pa., on December 27, 28, 29, 1922. For detailed information, address the Supreme Scribe, Dr. B. M. Brickman, 6334 Woodland avenue, West Philadelphia, Pa.

The Thirtieth Annual Meeting of the American Institute of Dental Teachers will be held at Creighton University, Omaha, Nebraska, Hotel Fontenelle headquarters, January 22, 23, 24 and 25, 1923.

A cordial invitation is extended to all persons interested in dental teaching.

Abram Hoffman is the secretary, 381 Linwood avenue, Buffalo, N.Y.

The 22nd annual meeting of the American Society of Orthodontists will be held in Chicago, at the Edgewater Beach Hotel, April 9th, 10th and 11th, 1923. A cordial in-

vitation is extended to all those interested in Orthodontia to meet with us.

Walter H. Ellis is the Secretary, at 397 Delaware avenue, Buffalo, N.Y.

The P. E. Island Dental Association held its annual meeting on September 27th, when the following officers were elected: J. H. Ayers, President; J. A. McMurdo, Vice-President; J. S. Bagnall, Secretary-Treasurer-Registrar, which office he has held for seventeen years. J. E. Blanchard and A. B. Reid were elected to complete the Council.

#### Making Teeth by Electricity

The making of artificial teeth is a fine art, and its success depends largely on the accurate baking of the fine porcelain used in the construction of teeth. All sorts of shades have to be given to teeth of different sizes, in order that accurate matches may be made with every kind of tooth from the pearly white ones of the popular actress, to the deeply stained tusks of the inveterate smoker. In order to be sure of obtaining the desired result, the temperature at each stage in the baking process must be accurately controlled. To ensure this condition a British manufacturer has devised a very ingenious electric furnace in which a quartz tube is heated by a close coil of wire wound round its exterior. The teeth under treatment travel along this tube, the temperature of each portion of which can be exactly recorded and controlled. This is a type of furnace which has been developed in Great Britain for a wide variety of purposes. It can be made in larger sizes with tunnels of fire clay for the glazing of tiles and pottery of various kinds. Its main advantage lies in the perfection of temperature control which ensures that all the material passing through will be properly glazed. With other types of furnace there is a large portion of "throw-outs" and the cost of the production is therefore greatly increased. Owing to the fact that very little of the heat electrically produced is wasted the electric furnace proves to be much more economical than would at first sight be supposed.



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Vol. XXXIV

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No. 11

#### Reciprocity in Dental Licenses

In general education and professional educational circles there has always been some recognition of previous training, but in professional licenses there has never been any basis of recognition of former standing. Because a minister of the gospel may perform certain rites of the church in Scotland it does not follow that he has any such authority in Canada. Because a dentist has the right to practise his profession in Nova Scotia it gives him no authority to do so in Ontario. So it is all over the world. It would seem as if the granting of professional licenses were on the same basis as the granting of licenses for commercial purposes, as the right to sell liquors or life insurance (a means of collecting taxes).

For many years there have been attempts to place the granting of dental licenses to practise on the same basis of recognition as is found in educational circles. A pupil in a public school, a high school or a university can transfer from one institution to another without beginning all over again. An undergraduate or a graduate of a school or uni-

versity can transfer from one to the other with full recognition of his present standing. Not so in dental or other professional licenses. If a man held a sheaf of licenses from every country in the world he would not be admitted to practise in New York State or the Province of Quebec. Because a dentist may be the holder of a license in a state or province or country it does not always give him the right to even sit for examination in another state, province or country. For years some form of provincial reciprocity was attempted in Canada without success. Similar attempts are now in progress in the United States. There are several groups of states which will recognize the licenses of the others, but there is no general recognition of the principle as in educational circles. It seems impossible for one dental or medical licensing board to be able to appraise the professional standing of another.

There seems to be a general recognition of the principle throughout America that a candidate for admission to examination for a license must be a graduate of a recognized dental college. Graduation makes the candidate eligible for examination only. A dental college certificate does not admit to practise in many states or provinces in Canada, while in England this is the chief means of admission to practise. At a recent meeting of the Board of Directors of the Royal College of Dental Surgeons it was suggested that the American method be followed in Ontario. There never has been a clear distinction between the actions of the Licensing Board and the Board of the School. It has often been pointed out that the Board should separate its licensing and teaching prerogatives. Exchange and transfer of students were always difficult because as a licensing body similar to others there should be no recognition of examinations of other bodies and while as an educational institution there should be recognition of standing obtained in other colleges of equal grade. Graduates of the Royal College of Dental Surgeons are required to take all the examinations of any state Board, while graduates of a recognized dental college can attend a year at the Royal College of Dental Surgeons and getalicense and escape all the examinations up to the Fourth Year, or even take three years in a foreign college and attend one year in the Royal College of Dental Surgeons and graduate and get a license without taking a full Licensing Board Examination. In future candidates who wish to get a license to practise dentistry in Ontario will be required to take the full dental board examinations no matter from what school or College they come. Candidates can graduate from the Dental School and get the University Degree without getting a license to practise in Ontario. Thus there is a clear recognition of former educational qualifications for a degree, and no recognition of these qualifications as a right to practise. In future there will be no difficulty separating the actions of the Board as a licensing body from its action as a controlling body of dental education.

Besides this there is an attempt to be made to exchange licenses with Great Britain. The ice has been broken in this matter by Great Britain granting licenses to quite a number of licentiates from Ontario, most of whom were officers in the Canadian Army overseas.

The negotiations which were under way several years ago fell down badly because of some details which were in-The General Medical Council advised the surmountable. Royal College of Dental Surgeons to negotiate with one of the qualifying bodies because there was no desire at that time for reciprocity in licenses, but a recognition of education qualification between a school in England with one in Ontario. It was believed that such an arrangement had been made with Edinburgh and Glasgow but the detail of matriculation was a barrier because Edinburgh required that the whole examination be passed at one time while in Ontario many matriculations were passed in parts. Besides this some of the subjects were required to be taken at a medical school. The Royal College of Dental Surgeons lived up to its understanding of the agreement by admitting to its senior class licentiates of Great Britain without condition. present basis of reciprocity has a far better chance of success because it is a matter of an agreement between the general licensing body in Ontario on the one hand and the licensing body of Great Britain on the other.

#### Hemorrhage after Extraction of Teeth

In the somewhat extensive literature on the treatment of hemorrhage after tooth extraction, little if any mention is made of oil of turpentine as an efficacious and reliable remedy.

Dr. F. St. Steadman reports several cases in the section on odontology, *British Medical Journal*. Its use is simple. Saturate a rope of gauze with the drug and pack the socket as with any other drug. The hemorrhage ceases promptly and the socket is clean when the packing is removed in a day or so. In the cases reported there was little trouble from recurrence of bleeding.

In closing the author says, "I have been using oil of turpentine as a local hemostatic for the past twelve years. During this time I have had about fifty cases in which sockets have required packing, and in the majority of them calcium lactate was not given as the bleeding was totally unexpected. In every instance the bleeding ceased within a minute or two of the packing."

Apart from its hemostatic action, oil of turpentine is a powerful antiseptic, so that when gauze is removed two or three days after its insertion, it still has a clean, faint smell of turpentine and the wounds are very much cleaner than they usually are when they have been plugged. I would emphasize the fact that the sockets are sweet and generally free from sepsis when the plugs are removed. The wounds heal very well indeed. I usually treat them for a few days by syringing with a weak solution of carbolic acid (1 in 80) in those cases in which I have been forced to pack a socket.

I regret having to admit that my use of oil of turpentine in this way is purely empirical. I do not know how it acts except that it lowers blood-pressure, but this obviously cannot be the full explanation. Oil of turpentine when given internally in the form of an emulsion to arrest hemorrhage from lung, stomach, bowels or uterus, has been known to succeed when all other drugs have failed. It is possible that a course of this drug, given internally before tooth extraction in cases such as I have described, may prove to be even more efficacious than calcium lactate; or possibly both these drugs might be used to advantage and thus save the necessity of packing the sockets. But it must be remembered that oil of turpentine given internally may produce irritation and congestion of the urinary organs, lumbar pains, distressing and ineffectual attempts at micturition, and even haematuria.

#### Book Reviews

Pullen's Orthodontic Impressions and Casts: Published by P. Blakeston: Reviewed by G. A. Dundas.

In the author's "Foreword" he states that the book could be used for all students from Freshman to the Senior year, but I think he must have overrated the knowledge of the present-day freshman, for, how many of them are acquainted with the terminology used in the profession in the first year of their course?

I will say, however, that for second, third, fourth, and fifth year students the book would undoubtedly be very beneficial as it is very concisely written and easily understood.

The first chapter dealing with definitions, reasons, and value of taking impressions and casts need not be commented upon as we all realize I would say just how important such a chapter is.

The second chapter dealing with all the preliminaries to the taking of the impressions, namely, the classification of materials used, trays, and the care and selection of same and preparation of patient is very concise and deals with many points that are of vital importance and points which I think, from reading different books, should be emphasized more than they really are. One of these points I would say is the care of the impression trays, another important and interesting thing is how to find out and control patients who gag and retch while taking impressions.

The author's method of taking the impression and removing it is described very minutely and here I might say that after reading the chapter over I felt that I understood more clearly the important points necessary for taking an impression.

The instruments used and described by the author I daresay are very useful but in my estimation it would be a waste of good money as well as a crime to make the students buy any such instruments when a good sharp pen knife would serve the purpose just as well.

There was one point of particular interest to me in the chapter, that was, the using of a core of compound wax to take the place of missing teeth while taking impressions then in assembling it to replace core in the space as I had experienced difficulty in taking an impression where teeth were missing in the region of the bicuspids.

The assembling of the impression is also well described and one difference I noted with the teaching that we have had is that the author marks the line of occlusion on the outside of the impression before pouring, which I think would be very useful and save many a cusp in separating as you would be able to tell just how close you come to the occlusal surface when carving.

The author's method of pouring is described very nicely and if followed out you should get a perfect model. The paralleling of the occlusal plane, athough very nice, is, I think, unnecessary and impossible for students.

The removing of the impression shell is to me the best chapter in the book for we all realize just how hard it is to separate the model from the impression and the author's description of how to do this, along with the illustrations, should, I think, make it much easier for one to do if followed out.

The rough finishing of casts is very well described and easy to follow, but to follow the fine finish is impossible as well as impractical as he deals with special machines which will trim and finish a model up in about six minutes but it would be necessary to have about a dozen of these machines in a school to enable anyone to get a chance to use one.

The charting for art patterns may be alright for a graduate of some engineering school but for a dental student I think it would be a waste of time for anyone to try and chart a model by means of it.

The author also gives some very good points on how to repair casts that have air bubbles and slight fractures. These points I think would be interesting to all students.

A new method to the majority of students of taking orthodontia models is the use of compound which in its place is very good but sad to relate it has a limited use which is very minutely described in the last chapter of Dr. Pullen's book.

In closing I would say that the book on the whole is designed for the use of students and would be a great help to them in their study of impression taking and cast making, not only in orthodontia but in prosthetics as well.

The American Pocket Medical Dictionary: W. B. Saunders Co. This 12th edition, published June, 1922, contains hundreds of new words. There are sixty extensive tables of arteries, muscles, nerves, weights, measures a thirteen page table of dosage in both apothecaries' and metric systems, etc. The pronunciation of every word is clearly stated, and reference is facilitated by the defining of all phrases under the noun, without exception. The size permits it to be slipped easily into the pocket—and the flexible binding facilitates quick reference.

#### **Editorial Notes**

Dr. W. F. Burns, Sydney, N.S., died October 5th.

Dr. R. H. Sykes has begun practice in London.

Dr. W. H. Mosley died in Toronto, September 22nd 1922.

W. D. Walters was fined \$50 and costs for practising dentistry in Toronto without a license.

Mr. C. Laurin, a student of the Dental Faculty of Montreal, has been elected president of the Students' Association.

Dr. G. G. McKee, late of Whitby, has located in Havelock, succeeding Dr. McLean, who has moved to Trenton.

Dr. Fuller made 7,620 dental examinations in the London, Ont., schools.

Dental office thieves are now operating in Windsor. They will move east soon.

Drs. J C. Levitt and R. W Freestone have been appointed to the Public School Board Staff, and Dr. J. F. Porter to the Separate School Staff.

The late A. A. Smith, D.D.S., who died in Toronto August 7th, 1922, left an estate of \$16,650. Dr. Smith was in practice over twenty years.

The press constantly writes about the close co-operation of the dental profession when, in fact, there is no such thing.

It would appear from newspaper reports that the Dental Board of Quebec is finding some opposition from McGill University in regard to the proposal to make the B.A. degree obligatory for admission to the study of dentistry. McGill thinks one year of college work after a high school course is sufficient.

Following a five-day illness and an operation on his nose in the Toronto General Hospital, William Cordingley Elkerton, formerly of the 19th battalion, C.E.F., died last month. Deceased was in his final year at the Royal College of Dental Surgeons. He was born in Allenford, Ont., and enlisted in March, 1916, at the age of 17. He was wounded at the Battle of Arras, in 1917, by a machine gun bullet in his neck, and was invalided back to Canada, arriving home on Christmas Day, 1918. He was a member of the Psi Omega Fraternity of the Dental College.

Deceased was prominent in all sports, and at one time held the 150-pound intermediate wrestling championship of the college. His parents Mr. and Mrs. W. H. Elkerton, in Chamberlain, Sask., one brother, Dr. F. J. Elkerton, in Toronto, four sisters and a brother in Saskatchewan, survive him. The body was taken to Chamberlain for burial.

Dr. William Burns, one of the oldest members of the dental profession in Nova Scotia, died last month, aged 74. He was a native of River John, Pictou County, and a graduate of the Philadelphia Dental College. He began practice in 1887. For some years he practised in St. John's, Newfoundland, and several years ago he was for a time in Regina, where he engaged with one of his sons, Dr. Stuart Burns, but most of his professional life was spent in Sydney. He is survived by his wife, two sons, both in Regina, and two daughters.

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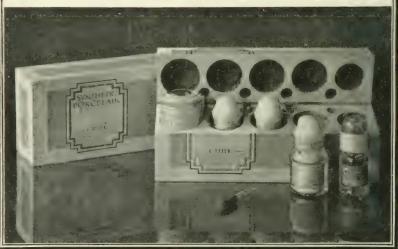


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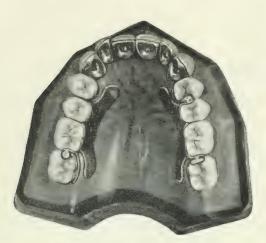
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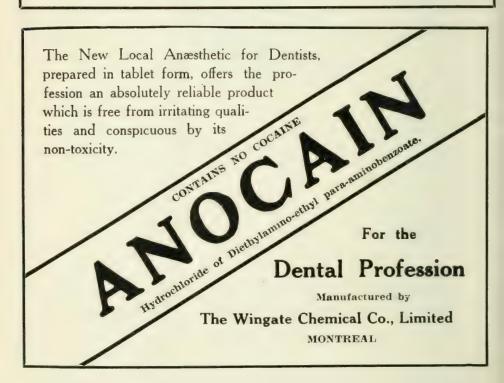
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# Dominion Dental Journal

Vol. XXXIV.

TORONTO, DECEMBER, 1922

No. 12

#### ORIGINAL COMMUNICATIONS

#### Some Further Remarks on the Relationship of Endocrine Derangement to Interstitial Gingivitis

E. G. Simmonds, M.R.C.S., (Eng.), L.R.C.P., (London), L.D.S.

In a recent contribution entitled "Endocrine Derangement as a Factor in the ('ausation of Interstitial Gingivitis,' (published in the Dominion Dental Journal, January, 1922), the present writer endeavored to show that the function of the organs of internal secretion are intimately connected with the constitutional causes of interstitial gingivitis; and three cases, treated by thyroid gland extract, were cited in support of that contention.

To recapitulate briefly, the conclusions arrived at in the

above mentioned communication were:

(1) That the numerous constitutional causes of interstitial gingivitis, associated as they are with either toxaemia or deficiency, are also causes of endocrine derangement.

(2) That endocrine derangement is an important factor

in the causation of interstitial gingivitis.

(3) That we may rationally treat the constitutional causes of interstitia gingivitis by means of organotherapy.

I have been unable to discover any record in dental literature that others are treating interstitial gingivitis by organotherapy; hence some further remarks on the subject may not be out of place.

It is not the writer's intention in this paper to go fully into the actiology of "pyorrhea," but to deal only with the systemic causes; and to try to trace the connection between dietary errors, endocrine inactivity and interstitial gingivitis. Talbot (1) enumerates the following systemic causes of interstitial gingivitis, viz: trophic changes, malnutrition,

faulty metabolism, disease, auto-intoxication, drug and metal poisoning, and the deficiency diseases.

Let us consider these causes, seriatim, as affecting the endocrine organs also.

(a) Trophic changes:

(1) Talbot's "senile osteo-malacia" affecting the alveoli, and which he describes "as a low grade of bone absorption, without apparent inflammation, as age advances."

Sajous (2) has shown how the adrenals trophy as age advances, and says "the senile state may be said to be as evident in these organs as it is in the features of the aged"; and, holding as he does that their functions are "to sustain oxidation and metabolism, the fundamental processes of the living state," he further says: "The asthenia of old age finds a normal explanation in the defective supply of adrenal secretion." Further he states "I look upon concomitant changes in all the organs of the adrenal system, i.e., the thyroid, adrenals and pituitary, as the underlying cause of senility"... "The symptomatology of senility and that of atrophy of the thyroid gland present considerable resemblance to hypothyroidia."

(b) Malnutrition and Faulty Metabolism: These two causes of interstitial gingivitis may be considered together, seeing that nutrition generally is dependent upon metabolism. McCarrison (3) states: "Whatever be the true nature of vitamins, they resemble in their action that of hormones, whose function is to stimulate metabolism." . . . "The disturbances of metabolism resulting from avitaminosis are bound up with, and are in considerable measure dependent on, the disturbance of endocrine function which results from the same cause" . . . "It seems, therefore, that both the functional perfection and the correlations of the endocrine organs are dependent upon a properly balanced and vitamin-containing food supply; dietitic deficiency means endocrine insufficiency."

Treating of adrenal secretion in respiration and metabolism, Sajous (4)) reaches the following conclusions:

- (1) "The secretion of the adrenals has a marked affinity for oxygen, and inevitably reaches the pulmonary aircells."
- (2) "On reaching the air-cells, the adrenal secretion absorbs oxygen, and becomes a constituent of haemoglobin and of the red corpuscles."
  - (3) "The oxygen-laden adrenal secretion is a constit-

uent of the albuminous haemoglobin in the blood plasma."

(4) "The red corpuscles, after absorbing the oxygenized adrenal secretion (the albuminous constituent of their haemoglobin) yield it to the blood plasma in the form of droplets—the so-called 'blood platelets'."

(5) "The albuminous constituent of the haemoglobin or oxygen-laden secretion, is distributed by the red corpuscles

to all parts of the body as oxidizing agent."

(6) "An excess of adrenal secretion causes a rise of

temperature."

- (7) "Ia is the adrenal secretion which, after absorbing oxygen from the pulmonary air and being taken up by the red corpuscles, supplies the whole organism, including the blood, with its oxygen. It is, as such, the oxydizing constituent of the haemoglobin, which in turn sustains tissue oxidation and metabolism."
- (c) Disease. Bright's disease and diabetes mellitus long been recognized as causes of interstitial gingivitis.

Here again I must quote Sajous (5) to show the connection of nephritis with endocrine function,

Sajous says: "The connection between the abnormal increase of adrenalin in the blood and all grades of nephritis has remained obscure. From my point, however, the explanation is to be found in the adrenal functions we have reviewed, i.e., a defensive reaction calculated to break down the pathogenic factors which impair the renal tissues, similar to that which occurs in infectious diseases, the adrenal overactivity being perpetuated as long as the harmful substances are present in the blood. The influence of the adrenals on oxygenation and metabolism is not only an integral feature of the defensive process in this connection, but also of the functional efficiency of the kidney itself. When the adrenals fail, oedema begins to appear owing to relaxation of the peripheral arterioles, whose tonus the adrenal principle sustains." . . . "Personal experience . . . has tended to show that adrenal efficiency materially influences renal activity."

As regards Diabetes Mellitus, the same authority (6) has this to say: "Diabetes is inadequately described in the average text book as "a disorder of metabolism, characterized by impairment of the ability of the tissues to utilize carbohydrate." The tissues are only impaired as the result of a primary disorder of the adreon-pancreatice-hepatic mechanism. The symptoms of the disease, considered from this viewpoint, assume a different aspect."

He then goes on to say that "the initial thirst, dryness and redness of the oral cavity and tongue and the viscidity of the saliva, the dry and harsh chin, with deficient perspiration, and epithelial drynes sof the mucous membrane, entailing pruritus, and the excessive appetite due to accelerated tissue metabolism—all common symptoms in diabetes mellitus—are due mainly to hyperadrenia and the resulting construction of the arterioles at large, plus the excessive loss of fluid caused by the polyuria."

The later symptoms constituting the asthenic stage of diabetes mellitus, according to Sajous, "coincide with the presence of more or less marked serious lesions in the pancreas, the result of excessive metabolism therein, and perhaps of autolysis . . . The acute infections are always serious in this advanced stage, the deficiency of trypsin, the main defensive ferment, and concomitant failure of the adrenals and thyroid, practically annulling the production of auto-protective substances. In about one half of the cases, death is due to coma, the result in turn of acidosis and failure of the defensive mechanism to antagonize it."

(d) Auto-intoxication and certain drug poisonings:

As illustrating the importance of the endocrine organs in these conditions, Sajous (7) says: "The toxic (certain toxins, wastes, drugs, vaccines, etc.), excites the immunizing centre-in the pituitary . This centre in turn stimulates the thyro-parathyroid glands and adrenals, thus causing them to supply the blood (and to a certain extent the lymph and serous fluids) with an excess of thyro-jodase and adrenooxidase. Metabolism being enhanced in all tissues by these substances, the pancreas also secretes an excess of trypsicferment, while the leucocytogenic tissues (bone marrow, lymph glands, etc.), produce an increased number of leucocytes, mainly finely granular oxyphiles and phagocytes . . The whole process imposes protective properties upon each ductless gland involved, i.e., the thyro-parathyroid gland apparatus, the adrenals and the pituitary. As to the two first named, their power to antagonize intoxication is now generally recognized."

(e) Metallic poisoning: Lead and mercury have long been regarded as causes of interstitial gingivitis. How do

they affect the endocrine organs. Sajous (8) says:

"When the functional activity of the immunizing centre (in the pituitary) is increased through the presence in the blood of some toxic, i.e., wastes, toxins, or endo-toxins, mineral and vegetable poisons, certain venoms, drugs, etc., capable of exciting this centre, it stimulates correspondingly the heat centre, and thus awakens the immunizing process."

In other words, the thyroid and adrenals are stimulated to produce auto-protective substances through stimulation o.

the immunizing centre in the pituitary.

One would imagine, too, that lead and mercury, in poisonous doses, might so seize upon the available supply of iodine in the system as to rob the thyroid of one of its most important raw materials.

(f) Dietetic errors and vitamin deficiency: the defic-

iency diseases:

At the present time a great deal of attention is being drawn to the effects of dietary errors and vitamin deficiency on the teeth, and their supporting tissues.

Talbot (9) says: "In my paper on interstitial gingivitis and pyorrhoea, I have summarized the later researches upon malnutrition in acidosis, scurvy, pellagra, beri-beri and other diseases, in which interstitial gingivitis is so common."

McCarrison's (10) experiments bring out vividly the results of dietetic deficiency upon the endocrine organs. He describes the results of experiments on pigeons, guinea-pigs and monkeys, produced by feeding these animals on six classes of deficient dietaries:

- (1) Deficient in all three classes of vitamins and in suitable protein, but rich in carbo-hydrates.
- (2) Deficient in B. and C. vitamins, and rich in carbohydrates and fats.
- (3) Deficient in B. vitamin but rich in carbo-hydrates and fat.
  - (4) Deficient in A. and B. vitamins.
  - (5) B. vitamin only, lacking.
  - (6) C. vitamin deficient.

"As the result of dietetic deficiencies, all endocrine organs—except the adrenals and pituitary body, which underwent enlargement, suffered varying degrees of atrophy and lowering in functional capacity.... The adrenal glands, the most susceptible of all the endocrine organs to dietetic effects, were found to become enlarged as the result of all six classes of deficient dietaries, and also in consequence of starvation... The adrenalin content varied according to the diet, being in excess when the food was deficient in vitamins and protein, but rich in starch; but below

normal when the diet was scorbutic, and when concurrent infections were associated with dietetic defects."

We have now considered in detail the close connection between the recognized causes of interstitial gingivitis and the state of the endocrine organs, and have found weighty evidence in favor of our first contention, i.e., that the numerous constitutional causes of interstitial gingivitis associated as they are with either toxaemia or deficiency, are also causes of endocrine derangement.

Our next step is to try to obtain a verdict in favor of our second contention, viz: that endocrine derangement is an important factor in the causation of interstitial gingivitis. What is the evidence available?

Frederick Taylor (11) states that in myxoedema "the teeth become carious and loose—haemorrhage from the gums is not uncommon."

Sajous (12) says: "In myxoedema—the teeth tend to decay and may become black within a comparatively short period, owing mainly to deficient calcium metabolism, or readily break off and fall out. This is greatly aggravated by the recession of the gums and the readiness with which these structures tend to ulcerate and bleed." Again under hypothyroidia, Sajous (13) says:

"The teeth, especially the molars, tend to become loose and carious unduly early, owing to deficient calcium and phosphorus metabolism which deficient thyroparathyroid secretion entails . . . . The teeth are exceedingly prone to become tartrous and require frequent cleaning. . . . The gums tend to bleed freely when brushed, and to recede from the teeth."

Howe (14) finds that animals, fed on a diet deficient in all three vitamins but supposedly sufficient in protein, carbohydrates and inorganic salts, show a condition which closely resembles pyorrhea," in which "the alveolar process is absorbed, the teeth become very loose . . . and inflammatory and degenerative changes occur in the peridental tissues."

Upon autopsy, these animals show also "atrophy of the glands of internal secretions."

The beneficial results of treatsent of interstitial gingivitis by thyroid extract, as reported in my previous paper, and as occurred in subsequent cases, tend to show that endocrine inactivity has a causal relationship to interstitial gingivitis.

Before considering our third contention, viz: that organ-

otherapy is a rational form of treatment for interstitial gingivitis, let us compare the morbid anatomy of infantile scurvy and that of interstitial gingivitis.

Morbid Anatomy of Infantile Scurry.

Under this heading, A. E. Garrod says (15): "The chief pathological interest centres around the lesions in the bones, and in the structures around them . . . the periosteum of the affected bone is found to be thick and highly vascular, but shows no evidences of actual inflammation; and it is separated from the underlying bone by a layer of blood clot. . . . Haemorrhages also occur into the bone itself, especially in the neighborhood of the epiphyses, where also a rarefaction of the cancellous structure is noticeable. . . . Schoedel and Nauwerk attribute the rarefaction of the bone to deficient formation, rather than to the absorption of bone previously formed. . . . The rarefaction has been ascribed to the intra-osseous extravasations, but Naegeli is inclined to look upon it as a primary and characteristic feature of the disease, which precedes the occurrence of haemorrhagic lesions."

Morbid Anatomy of Interstitial Gingivitis.

Talbot (16) writes "My microscopical studies up to the present time, on cows, horses, monkeys, dogs, guinea pigs, rats and man with scurvy, tuberculosis, rickets and all wasting diseases, metal and drug poisoning, and auto-intoxication, all show the same pathology; First, bone absorption.

. . . Second, Inflammation of the gums and fibrous tissue; Third, pus infection. The alveolar process is almost always the first structure involved in all trophic changes and wasting diseases. The physician naturally calls the disease a form of scurvy, and rightly so, since the pathology and local symptoms are the same."

Hopewell-Smith (17) found that the changes in the osseous structures invariably constituted the primary lesion.

Fleischmann and Gottleib (18) also found "that an atrophy of the bone is the casual and primary factor in the aetiology of pyorrhea alveolaris". That the atrophy of the bone is far removed from the inflammatory focus, and is separated therefrom by healthy tissue. The atrophy of bone is surely due to a constitutional factor. . The periodontium is usually free from inflammation. . . We see very frequently a dilatation of the vessels, and a proliferation of the capillaries; many times both these phenomena are present in an intensity so significant that the entire periodontium

In many preparations there are also observable the signs of a new formation of bone. The new formation of bone was seen only in the deeper levels, never at the summit of the alveolus. All types of changes occurring in bone are found, without exception, far away from any inflammatory focus

whatever."

On comparing the morbid anatomy of infantile scurvy, as stated by Garrod, with the morbid changes in interstitial gingivitis, as described by Fleischmann and Gottleib, one cannot help being struck by the remarkable similarity of the two descriptions. The chief pathological changes - as affecting the bones and periosteum -in both conditions seem to be increased vascularity of the periosteum, haemorrhages and atrophy of bone, quite apart from any actual inflammation. The symptoms and morbid anatomy of the two conditions being identical—as also stated by Talbot—one cannot doubt that we are dealing with one and the same disease in varying degrees, and one might well look upon interstitial gingivitis as a modified form of Barlow's disease or scurvy-rickets occurring in the adult. In that case it becomes important to remember that, among other organs and tissues, the endocrine glands are among the first to suffer in all forms of deficiency disease, as conclusively shown by McCarrison's experiments. It therefore follows that, if interstitial gingivitis be a local manifestation of a deficiency disease, there must also be atrophy of the thyro-parathyroid glands, and changes in the pituitary and adrenals, accompanied by alterations in the internal secretions—generally in the direction of diminished secretion. Thus, McCarrison (19) writes:

"My studies have provided some interesting contrasts in

the behaviour of certain endocrine organs in the presence of food faults. Thus the adrenal glands tend to undergo enlargement, while the thyroid tends to atrophy in the presence of food deficiencies. When, on the other hand, the food is excessively rich in proteins and fats, without any deficiency of vitamius, the thyroid tends to enlarge and the adrenals to diminish in size. . . . It seems, therefore, that both the functional perfection and the correlations of the endocrine organs are dependent upon a properly-balanced and vitamin-containing food supply: Dietetic deficiency means endocrine insufficiency."

Taking all the evidence into consideration, I think we have reasonable support in favor of our conclusion: That we may rationally treat the constitutional causes of interstitial

gingivitis by means of organotherapy.

In a previous communication (20) the present writer published notes of three cases of interstitial gingivitis which had been treated by administration of thyroid extract, in which remarkable results were obtained. Subsequent experience with the same line of treatment has tended to confirm the good impression first formed, as to its efficacy. One of my cases has now been taking thyroid extract for three years. with remarkable results both as to mouth conditions and health generally. Two other cases showed wonderful improvement under thyroid extract treatment, the condition of the gingivitis having returned to normal; both these cases were in the early stages of the disease; but, unfortunately, symptoms of hyperthyroidism supervened, owing to excessive dosage of the thyroid extract, and both patients discontinued treatment, with the result that the gingivae relapsed into their former unhealthy condition in the course of three or four months; both these cases were treated again with smaller doses of thyroid extract, and in both cases the gingivae responded to the treatment, and again became healthy. completely losing their hyperaemic, scurvy-like condition. This is very valuable evidence, in its way, as emphasizing the value of thyroid extract in these cases, seeing that the condition of the gingivae fluctuated, as it were, according as to whether thyroid extract was being taken or not, no other treatment being employed at the same time.

One other case I must mention briefly because it has a two-fold interest:

The patient was a rapidly-growing youth of about 18 years, with hyperaemic, spongy gums, very abundant vis-

cid saliva, and with caries in nearly every tooth in his mouth — one of those 'desperate' cases with which every dentist is familiar — caries was so rapid that it seemed almost impossible to cope with it, even the lower incisors not being exempt from decay. The gums were swollen and hyperaemic, and bled readily. This patient was put upon thyroid extract and cod liver oil, and in six months time, his mouth was in better condition than at any period during the previous three years; the gingivae became firm and healthy-looking; the amount and viscidity of the saliva had greatly decreased; and there were no signs of further decay of the teeth.

Broderick (21) has shown the possibility of increasing the calcium content and raising the degree of alkalinity of the saliva by means of organotherapy. I cannot say if this happened in this particular case, but there was a most decided change in the nature of the oral secretions, the flow of saliva being greatly diminished and its viscidity greatly lessened. By its two-fold action on the gingivae and oral secretions, the thyroid extract seemed to have benefitted both the teeth and

their supporting tissues.

I have had no experience with pluri-gland preparations—only with thyroid extract taken by mouth. But, as Sajous (22) says: "When we administer thyroid gland, which combines the action of the thyroid and parathyroids, the following effects are produced: It renders the phosphorus of all tissues and all free substances, such as bacteria, wastes, toxins, etc., containing phosphorus, more inflammable or sensitive to the action of the oxygen in the blood. As this applies particularly to nerves and nerve-centres (all of which are particularly rich in phosphorus), the adrenal centre and, therefore, the adrenals themselves are excited . . "Thus, according to Sajous, by administering thyroid extract we in directly influence the pituitary (in which is situated his "adrenal centre") and the adrenals as well.

As far as my own observation of thyroid organo-therapy has gone, two chief points seem to have been emphasized:

- (1) That the initial dosage should be small; it can easily be increased if necessary; but if excessive doses be administered in the first place, and symptoms of hyperthroidism supervene, the patient is apt to become scared and to discontinue treatment.
- (2) That treatment must be continued for a sufficient length of time.

The early stages of interstitial gingivitis respond to thyroid extract treatment in two or three months; but if treatment be discontinued at that stage, a relapse is sure to occur. It would seem that continuous treatment for at least six months, followed by constant observation and renewal of treatment, after an interval, if necessary, would keep the disease in check.

There seems to be no limit as to the length of time during which a patient may be kept on thyroid extract treatment, provided the doses are well regulated.

One of my cases has now been on continuous thyroid treatment for three years. This particular case brings out two other important points-not especially connected with the mouth and teeth—but of general surgical interest, viz: that whereas, three years or more ago, the blood was deficient in coagulating power, and wounds healed slowly, now, after thyroid extract treatment, the blood coagulates quickly and firmly and wounds heal rapidly. These facts are not without their importance in view of such heroic measures as alveolectomy of both jaws-if such measures are ever justifiable—seeing that such authorities as Talbot, Hopewell-Smith, Fleischmann and Gottleib, maintain that atrophy of the bone is the primary lesion in "pyorrhoea alveolaris." even in situations far removed from any inflammatory focus: and, when one is advised to curette the alveolar bone "till sound tissue is reached," one is inclined to ask the question: "Is sound bone ever reached in advanced cases of pyorrhea?" This, however, by the way, What we are now concerned with is this, viz: whatever local operative treatment -heroic or otherwise-has to be employed, a preliminary course of thyroid extract treatment, owing to its effect

- (1) On calcium metabolism,
- (2) On the coagulability of the blood
- (3) On the healing of wounds
- (4) In increasing the resisting power of the tissues to infection, would seem to be one of the greatest aids at our disposal towards obtaining good surgical results.

At the present time great stress is being laid on the illeffects that arise from an ill-balanced diet and deficiency of vitamins; but relatively little mention is made of the fact that the endocrine organs invariably suffer when the diet is at fault.

McCarrison (19) states that "dietetic deficiency means endocrine insufficiency." It has been said that the average

person would not change his diet to save his soul, much less his teeth. That is the crux of the situation. If we are to rely upon a sound dietary to prevent or cure interstitial gingivitis, we shan't get very far, in the present state of our civilization.

As Dr. Leonard Williams (23) has put it: "The community at the present day was hyper-civilized.... The community lived upon food from which vitamins were rigidly excluded. We boiled our milk, steamed our vegetables and cooked our fruit. That was done from a combination of pleasure and fear; pleasure in the enjoyment of the foods so cooked; and fear of the microbe. ... In our insane fear of our enemies, we slaughtered our best friends." "The results of an uncooked dietary" in his opinion, "were no less wonderful than those of the thyroid treatment of myxoedema."

The writer does not advocate the indiscriminate use of thyroid extract in every case of interstitial gingivitis, although it would probably be beneficial in all cases, seeing that every known cause of the disease also involves the endocrine organs.

A really correct diet alone would probably, of itself, be sufficient to prevent or cure the constitutional causes of interstitial gingivitis in most young subjects; for a correct diet should afford the necessary stimulus to the endocrine organs in many such cases. But in many others—especially in middle aged and old subjects—the endocrine organs may have atrophied—from one cause or another—to such an extent that no amount of stimulation by vitamins could produce the necessary amount of internal secretions to keep the body in health. In such cases, one can rely only upon organotherapy to complement the deficiency in the patient's own internal secretions.

As a general rule, it is so difficult to get the average patient to grasp the essential principles of a correct dietary, that results cannot be relied upon.

If we cannot be sure that our patients are employing a correct dietary—not for a short time only, but always—the only alternative seems to lie in organotherapy.

In conclusion the writer would once more quote Sajous, (24) who says: "When thyroid preparations are judiciously used, that is to say, when their action is controlled by giving only carefully adjusted doses... results are obtained

which soon convince the clinician that they constitute a very valuable addition to our armamentarium."

Among other conditions Sajous (24) advocates the use of thyroid preparations "In diseases due to lowered general nutrition of all tissues, including the bones," and "in disorders in which calcium metabolism obtains—osteo-malacia, rickets, osteo-myelitis."

Surely we may include interstitial gingivitis in this cate-

gory!

The whole subject is of vast interest and importance, and emphasizes, more than ever, the need of a thorough co-operation between physician and dentist.

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#### Diet in Relation to Dentistry

A review of the literature from 1918 to 1922 inclusive issued by the Department of Dental Research, University of Toronto.

DENTAL COSMOS, Sept., 1917 --- pp. 907. Dr. L. T. Rouster.

"This brings us directly to a consideration of the character and amount of food required by the growing organism.

Nature has supplied the child with the food which is best suited to its needs, the breast food of its mother. Generally speaking breast-fed babies crupt their teeth somewhat earlier than those artificially fed. It is not uncommon for breast-fed babies to commence teething at three months, nor is it uncommon for artificially fed infants to commence as late as nine or ten months. This may occur in those artificially fed by the most approved methods, which demonstrates that however carefully and scientifically cows' milk is modified to conform to the needs of the growing child, it does not exactly fill the requirement. Children fed on the prepared foods of commerce, especially those that are not mixed with cows' milk are usually noticeably late in crupting their teeth.

It is best to have the mother nurse the baby during the greater part of its early life. Delicate infants require that nursing be kept up for a longer period than the robust. It is better for strong and healthy infants to receive solid food sometime during the last quarter of the first year in addition to the mother's milk, which should be supplanted by solid food by the twelfth month. Unfortunately, many mothers cannot nurse their babies during all of this period. It is in this class of cases that we must be most careful.

Regardless of the fact that all food elements which go to make up the bony structures, especially the lime salts, are contained in the mother's milk, chemical analysis shows a very small percentage of these salts. The most important age in feeding, therefore is that period during which the permanent teeth are forming. In those instances where mothers are unable to nurse their babies for any protracted period it becomes necessary to furnish a substitute. It is highly important then, that this be done promptly. The mistake is more often made of giving too strong a food when the child is too weak. However, one cannot too strongly emphasize the importance of not keeping the child on a weak formula for an unnecessary period of time. The most ap-

proved methods are simple dilution of whole milk or a mixture of cream, skimmed milk, and water, with the necessary amount of milk or malt sugar.

Towards the end of the first year and during the whole of the second year we must change from liquid foods, rich in fats, carbohydrates, and proteids, to those which contain more organic salts than do fats and proteid; in other words, largely carbohydrates in combination with organic lime salts. All the lime salts necessary for bone development are present in the vegetable kingdom, in which form they can be assimilated with more readiness than inorganic salts administered as such.

During this transition period the fruit juices are essential as well as desirable. The white potato furnishes us with the best potash salts of any food which has yet been found, and that particular part of the potato known as the cortex, which is found immediately beneath the jacket is the most valuable part, while carrots, spinach, kale, and turnip tops are next in value.

Sugar is of great value in the dietary as a heat producer, but since all forms of carbohydrates are transformed in the process of digestion into sugar, the child secures enough of this product when it is used only as a simple sweetener, without any addition in the form of candy.

It will be readily seen from what I have said that nutrition which bears directly on the formation of the teeth is merely that which is necessary for the body generally. All food must be furnished rationally. Directions as to food are simplified by knowledge of the underlying fundamental facts.

To recapitulate, then, parents should be healthy before they assume the role of parenthood. During the nine months of gestation the mother's health, exercise and food should be looked after with zealous care. After the birth of the infant all mothers should be induced, as far as their physical condition will permit, to nurse their offspring. When this is impossible, modifications of cow's milk are best. After the weaning period simple, wholesome and easily digested foods are to be preferred to the fancy articles of diet. Add to this an abundance of fresh air at all seasons of the year and we are more than likely to have easy dentition and well formed teeth, which with a reasonable amount of care need almost never decay.

#### JOURNAL AMERICAN MEDICAL ASSOCIATION Vol. 73, 17, 1919 P. 1313.

Editorial:

Sinclair claims that to improve the teeth of the future generations it will be necessary to begin with the pregnant mothers and supervise their diets so that they may have a well-balanced ration in excess of their usual food requirements, to the end that both mother and child may not lack needed nourishment for perfect growth and development. This careful dietetic oversight and management must follow the nursing mother and her child until weaning is accomplished, after which the child must be still further properly directed from the standpoint of diet. With the appearance of the deciduous or milk teeth, such food as will require chewing should be given to the child. Dry crusts of bread zwieback, toasted bread, the coarser cereals, meat and meat bones, and later green salad leaves, cooked celery, spinach, peas, cauliflower tops, asparagus tips, string beans and apples.

> LANCET,—Vol. 195, 1918. pp. 770-Mrs. May Mellanby.

One can now see a rather obscure but still a real picture illustrating in part at any rate, the cause of defective teeth of modern civilization. A perusal of a list of the substances containing fat soluble A makes it clear that civilized conditions, and more particularly those conditions met with in urban life, exaggerate the part played in the dietary by just those substances that are deficient in this type of accessory factor. Our diet, particularly that of the poor, is now more than ever made up of specially prepared cereals, such as wheat, rice, oats, etc. Meat and animal fats tend to play a smaller part. Vegetable fats in the form of margarines, etc., are superseding butter, whole milk is being excluded more and more from the diet of the poor, partly at present because of the cost, and partly because of a curious antipathy many people have toward it. Then, again, with the development of civilization, breast feeding is not so commonly practised, and when practised, is often continued for only a short time. On the accessory food factor theory one can also understand why the Eskimo in his own country, where flesh and blubber are the staple articles of diet, has such excellent teeth, while the inhabitants of Chili, who live chiefly on cereals, have teeth which are much less sound.

There is no doubt that our modern dietary is harmful

as far as the teeth are concerned, and if the results of the present work and the deductions made are correct, the teeth of the people of this country will tend to become worse, unless our diet consists in the future more of whole milk and other foods containing fat soluble  $\Lambda$  and less bread, rice, potatoes, etc., which are deficient in this factor.

Summary of results:

1. A diet containing an abundance of those articles with which the fat soluble A accessory factor is associated; e.g., cod liver oil, butter, etc., allows the development in puppies of sound teeth.

2. A diet otherwise adequate but deficient in the substances with fat soluble A is associated brings about the

following defects in puppies' teeth

(a) Delayed loss of deciduous teeth.

(b) Delayed eruption of permanent dentition; in some cases the delay in the eruption of the permanent teeth is more marked than the delay in the loss of the deciduous teeth.

(c) Irregularity in position and overlapping, especially

of the incisors.

(d) Partial absence or very defective enamel.

(e) Low calcium content; the deficiency in calcium salts may result in the teeth being so soft that they can be cut with a scalpel.

3. The evidence makes it clear that this is an instance of the diet affecting the teeth from the inside and is independent of bacterial sepsis and other oral conditions associated

with food.

4. These results cannot be attributed to acute illness or "malnutrition," for (a) the improvement to the teeth by the addition of fat-soluble A containing substances (animal fat, etc.,) is as characteristic as the deleterious effect of a deficient diet; (b) there is evidence that the defective teeth are most pronounced in the rapidly growing puppies, and it is difficult to associate rapid growth with illness or "malnutrition" as generally understood.

5. This work, taken in conjunction with experiments of E. Mellanby on Rickets, puts the close relationship between hypoplastic teeth and rickets on to an experimental basis.

#### DENTAL COSMOS, April, 1920. pp. 454.

Mouth Hygiene, Controlled by Diet Through Salivary Analysis, by H. C. Ferris, D.D.S., New York.

For the sake of discussion let us assume that dental

decay is a secondary lesion, or a symptom complex of a pathological condition in some other region of the body, and by a correction of these conditions we could prevent dental caries and other diseases of the mouth. Could we select any better corrective means than the chemistry of our food to bring about this change in the system? Or, if we acknowledge that the primary factor originates in the mouth in the form of lost structures or perverted function, we must still admit that the pathological results are far reaching and general in the influence. This is evidenced by the abnormal condition of the salivary secretion which flows over our teeth a good part of the twenty-four hours every day, and in a pathological patient is devoid of its natural protecting agencies.

If we are correct in this reasoning we should then enter the field of physiology and pathology, and write prescriptions for diet instead of filling teeth. This prediction seems fanciful, but it is being accomplished.

A cure for caries, the practically universal plague of the human race, is the gauntlet thrown at the feet of the dental profession by the practitioner of medicine. If the medical man refuses to study this region of the body, the obligation rests upon the dentist.

If we assume the responsibility, and we do, our first acknowledgement must be that we are not only treating the first three inches of the alimentary canal, or the digestive tract, but that we have to deal with the fundamental physiological phenomena of life, digestion and assimilation of food, accompanied by their reflex influences on the salivary, gastrie and pancreatic secretions.

At the present time, pathologists are quantitatively analysing the feces and studying the bacteriological conditions.

Does it not appeal to your common sense that this work is upon the wrong end of the alimentary canal; that many of the pathological conditions of the intestine have their origin in the loss of function of the organ of mastication and in the first chemical change of our food, and that the crushing machine that nature has devised is the most practical part of the tract in which to begin treatment? The mouth and its parts represent the most powerful organ of the digestive tract; and every incline plane of a tooth is part of that machine. The intricate nervous mechanism which controls the secretion of this organ which produces three units of saliva daily, containing animal ferments, receives little or no con-

sideration in the minds of our physiologists and pathologists although they acknowledge its function.

The salivary secretions, be they normal or pathological, cannot be lightly dismissed or carelessly considered, for they constitute an index not only to the local oral conditions, but afford a key to the physical and even mental condition of the organism.

#### FUNCTION OF THE SALIVA.

The salivary secretion possesses a dual function. Selectively excited from the various glands under the control of an intricate nervous mechanism, a modified saliva is evolved for each kind of food that enters the mouth. Primarily, it operates to reduce carbohydrates and to prepare other foods for further digestion. Secondarily, the secretions of the salivary glands operate as inhibitors of what we designate as our sense of hunger. After our food is digested and enters the bloodstream certain principal properties, such as acid salts and solids, are dialized through the glands into the oral cavity in such quantities as to control our morbid desire for certain foods, provided we do not, through habit, develop abnormal activity.

It is not surprising that so many people suffer from intestinal indigestion when we consider the fact that the masses of undigested food in the intestinal tract form a perfect medium for the multiplication of the acid-forming bacteria. The fermentation and putrifaction of these foods results in the formation of toxins, poisoning the blood and tissues, and overtaxing the eliminating organs. Finally, the toxins make their way through the salivary glands, as through a safety valve, in the mouth. Their presence in the oral cavity destroys the normality of the secretions of the mouth and permits of excessive growth of bacteria, fermentation and acids, after which they pass out through the feces if they are not returned in this vicious cycle.

Lancet-Vol. 198, 1920, pp. 65.

#### DENTAL CARIES IN PREGNANCY—C. W. Saleeby.

The less important of these two facts is the dental caries so common in pregnancy. The work of Mrs. Mellanby on the development of the dental enamel in puppies' teeth, according to the supply of the growth factor in their diet suggests that the dental caries of pregnancy, may be associated with the demands of the foetus upon the growth factor which it requires from the maternal blood. Evidently the production

of enamel and the protection enamel are not the same process; but if the growth factor be the antirachitic factor, if it be protective in function, defect of it may cause defective production of enamel in the one case and defective protection of already formed enamel in the other. We know that thyroid deficiency produces different results in the developing and in the fully developed organism respectively. Further, defect of the growth factor in experimental rats and in children may cause xerophthalmia, due to lessened resistance to bacterial action; and the case of dental caries may be analogous. Should we not now make very exact and statistical observation, in re vitamine content, upon the dietaries of those pregnant women who respectively do and do not suffer from the acute dental caries of gestation?

#### DENTAL COSMOS, Nov. 1920.

#### Dr. Gottleib, "Rachitis and Enamel Hypoplasia,"

- 1. The enamel hypoplasiae come as a rule into existence by the crumbling of normally formed, but defectively calcified or non-calcified, elementary substance. The effect on the disturbance in the deposition of lime (rachitis) is, according to the differences in kind of tissue, different from the effect on the bone and dentine.
- 2. The different forms of defective enamel calcification, especially chalky enamel, are preliminary phases of enamel hypoplasiae.
- 3. Owing to defective calcification in case of rachitis the appearance of the tooth as a rule, also the formation of new dentine, is delayed. The enamel epithelium is hardly delayed in growth in comparison with the base it becomes too large, is displaced and forms folds. Sometimes even the formation of new dentin does not slacken accordingly, so that it is also obliged to form folds.
- 4. The cutting of the tooth represents partly the pushing off of a part which owing to continued calcification, has become a foreign body to the organism.
- 5. The degeneration of the ameloblasts occurs comparatively late and is not primary, but is directly or indirectly due to defective deposition of lime.
- 6. The relation of tetanus or other disorders to enamel hypoplasiae can only be explained in their connection with rachitis.

#### DENTAL COSMOS, June, 1921. Dr. E. V. McCollum.

We are justified in pointing with pride to the fact that we are now able to formulate a satisfactory working hypothesis as to what constitutes a satisfactory diet. . . . A satisfactory diet must supply,

- 1. An adequate amount of protein of good quality.
- 2. A suitable amount of some utilizable source.

Excerpts from a report of the National Research Commission.

Grants from our research fund have been allotted mostly to men having university affiliation because we felt that universities are better equipped for the prosecution of this work, first, for the reason that they have men trained in specialized fields and naturally we would expect them to develop new fields of investigation, and secondly, because co-operation between the various departments is conductive to better results.

Without dilating further upon the value of the work being prosecuted under the direction of the Research Commission I will proceed with this report, assuring you that every precaution is being taken that grants are given only to those whom we felt assured possessed the necessary qualifications to undertake research problems, and that our financial policy has been as conservative as possible, having in mind always the best interests of all who are contributors to this fund, as well as the profession as a whole.

The workers under all grants report that ample opportunity is given for conference with other scientific men who are qualified to lend aid and advice on certain phases of the work. This condition especially prevails when the grant is located in a broadly organized educational institution. It is reported also that the research workers have freely taken advantage of the arrangement. Again, the workers under all grants report that much equipment and material outside of their own laboratories is at their disposal and is being used by them.

(To be Continued in January Issue)

#### The Health of Children

WITH SPECIAL REFERENCE TO FOOD AND FEEDING

(Issued by the Department of Health, New Zealand)

It is especially important to establish, as far as possible consistency in the principles taught, countenanced, and put in practice by educational and other authorities having to do with the rearing of children.

Following on a conference of the Directors of the Health Department with the school Medical Officers on the above subject, held on the 8th and 9th September, 1921, a subcommittee consisting of Dr. F. Truby King, Dr. E. H. Wilkins, and Mr. T. A. Hunter was appointed for the purpose of drafting recommendations, suggestions, and resolutions based on the proceedings, discussions, and resolutions of the conference.

In drawing up its statement the sub-committee has attempted merely to set forth simple, practical guiding principles bearing on prevailing errors in regard to the food and feeding of children beyond infancy. No attempt has been made to traverse the whole field of dietetics and nutrition; the aim has been only to point out briefly the main essentials for improving the health, nutrition, and growth of the rising generation, just where people tend to go most astray.

#### FATS AND OILS

In general there is a fair proportion of fat in the average colonial dietary, but it should be emphasized that ample fat in the daily food is specially important in childhood.

On economic grounds, parents and guardians should realize that butter which is always more or less expensive, has practically no advantages, as regards nutrition and health, over the much cheaper dripping—or suct used in cooking.

#### SUGARS AND STARCHES

While a due proportion of carbohydrates is necessary in the diet, it is of greatest importance that we should encourage their use as far as possible in their natural associations with other materials (e.g., as occurring in whole meal, fresh fruit, vegetables, &c.) rather than in the form of the separated, refined, and concentrated flours, starches, and sugars of commerce.

There is practical unanimity amongst medical and dental authorities that the present excessive use of manufactured

sugar, sweets, chocolates, biscuits, cakes, &c., especially between meals or at bedtime, is the most potent cause of indigestion, malnutrition, and dental disease among children.

The practice of sweet-eating by children between meals should be condemned without reservation as to the quality of the sweets. As a choice of evils no doubt "boiled sweets" are less injurious than soft, sticky sweets such as chocolates, &c., but the common idea that "boiled sweets" are harmless is quite erroneous.

#### CEREALS

Meals which contain the whole of the grain, such as wheatmeal and oatmeal, are better foodstuffs, especially for growing children, than their highly refined products—such as white flour and the more refined oatmeals. Though the farinaceous foodstuffs in common use, such as cornflour, sago, tapioca, arrowroot, macaroni, &c., are all highly refined artificial products, their use may not be sufficiently extensive in the Dominion to be in itself a serious practical consideration. It must be recognized, however, that the modern tendency to extreme refinement of cereal and other farinaceous foodstuffs is a serious mistake; and, in view of the large quantity of bread consumed, the quality of the meal or flour from which bread is made is of the very greatest importance. This is apparent from the established nutritive inferiority of polished rice to whole rice, and of white flour to whole meal. Special efforts should therefore be directed by all authorities concerned in the rearing and education of children to promote the more general use of wholemeal bread.

#### FRUIT

The greater use of fruit, especially raw ripe fruit, should be strongly advocated. It should be emphasized that the regular taking of fruit (more or less acid) at the end of each meal, especially at the end of the last meal of the day, is one of the chief means of minimizing oral sepsis and thus preventing dental decay and the tendency to tonsilitis, rheumatic fever, &c. Attention should also be drawn to the great importance of uncooked fruit, including tomatoes, as a source of the necessary vitamines, and as conducing to healthy activity throughout the digestive tract and the establishment of normal microbic flora in the intestine.

Of course, we all recognize that fruit should be cheaper, and that much more could and would be produced, both commercially and in home gardens, if people in general recognized its supreme importance for the growing family. In

both these directions we may be sure that a great economy would soon be brought about if all medical men, dentists, and nurses impressed on the people in their districts the great importance of fresh raw fruit, especially during the period of active growth and development. The cost of fruit should not be considered a serious difficulty in the way of its more general use in the Dominion. In view of the amount of money commonly spent on sweets, the expense of dental treatment, and the much greater expense and loss of efficiency ultimately resulting from untreated dental disease, the greater use of fruit even at its present high prices would be an actual economy.

#### VEGETABLES

A liberal and varied supply of fresh vegetables should be strongly recommended. As green vegetables are specially protective against deficiencies which may occur in the remainder of the diet, this point should be emphasized, and parents should be urged as far as possible to grow some green vegetables in their own gardens. Special importance, of course, attaches to salad materials used in the raw state, such as lettuce, mustard and cress, radish, &c., and the public should be brought to realize the damage done by such common mistakes in cooking vegetables as the use of soda, unnecessary peeling or paring, overcooking in excess of water, &c.

As in the case of fruit, the increased demand which would follow upon a greater appreciation of their food value would no doubt result in an increased production of vegetables and a fall in price.

#### TEA AND COFFEE

Tea and coffee being neither good nor necessary beverages, their use should be strongly discouraged in the case of growing children. It is desirable to impress upon parents that both are specially injurious to children on account of their tendency to impair digestion and, as nerve-stimulants, to conduce to nervous instability.

#### MILK

A consideration of the caloric value and protein ratio of cow's milk, in relation to the total caloric and protein requirements of young children, renders it apparent that a large quantity of milk in the daily diet causes an undue proportion of the child's food to be taken in a liquid or sloppy form, giving no exercise to the jaws, teeth, or salivary glands.

It is specially necessary at the present time to insist on the mistake of giving children as much milk as they will drink, because an intemperate "milk cult" has been given undue newspaper prominence of late in a set of rules for children headed "The Health Game." These rules, emanating from New York, were intended for the poor of great cities who can never get enough milk. Copied without explanation into the newspapers of a well-to-do dairying-country, Rule 4 of the American "Health Game"—namely, "Drink as much milk as possible"—is palpably wrong and misleading.

Some of our children are already given too much milk—milk being popularly regarded as a mere drink, rather than as a substantial food. Excess of milk in the diet of children from two years onwards may be as harmful as deficiency. It is well to remind parents who happen to be obsessed with the wrong notion that milk should form a large proportion of the diet in childhood that in New Zealand (and in many other countries where exceptionally well-built, virile, capable races were evolved) cow's milk never entered into the diet until cows were introduced by Europeans. The milk industry in its present magnitude is a recent development in the history of civilization.

In reply to the question "How much milk should a child have daily?" it can be stated confidently that for a healthy child, say, from the age of three years, receiving an otherwise satisfactory diet half a pint (including that which is combined with other foods in cooking) is enough.

#### MEAT

In general the quantity of meat taken daily in colonial families is greatly in excess of the bodily requirements, and is much more than is desirable for health, particularly in the case of children. It is highly desirable, moreover, to impress on the whole community that the popular idea as to meat being specially conducive to the development and fitness of muscle, and to increased strength and vigour, is erroneous.

As proteins are derived from various sources and differ greatly in their nutritive values, it is impossible to give any hard-and-fast figures as to how much meat should be taken—the best daily allowance will vary greatly according to the protein intake in the form of fish, milk, cheese, eggs, legumes, and other foodstuffs with high protein content. Of course, "red meat" need not enter into the diet at all, and many

authorities hold that children are better without meat during the first few years of life.

In the case of children partaking of the ordinary food of the ordinary home, an ounce or two of meat per diem would certainly suffice between two and four years of age; and up to, say, six or seven years three or four ounces would be ample. Very little further increase need be made until the onset of rapid growth during puberty, when between a quarter and a half pound of meat, fish, or fowl per diem would not be excessive, unless high protein were given in other foodstuffs. On the other hand, it must be borne in mind that meat is regarded as having an undesirable stimulating effect upon the sexual and nervous systems of many children, especially during puberty, and that it is better for such children to be given their proteins largely in other forms, such as cheese, eggs, milk, legumes, &c.

#### Preserved Foodstuffs

Jam, tinned milk, tinned meat, tinned fish, &c., tend to be lacking in essential vitamines, and are inferior in nutritive value to fresh foods. The undue and increasing use of "tinned foods" is damaging to health, and should therefore be discouraged.

#### MASTICATION

The necessity for vigorous mastication as a vital function cannot be too strongly emphasized, and the diet should consist largely of foods which give due exercise to the parts provided by nature for this purpose—namely, the jaws, teeth, tongue, and salivary glands. Such exercise is not only necessary for the development of these structures, but reacts favourably on the whole digestive tract as well as on the whole organism. This being so, the eating of food such as stale bread, crusts, toast, oven-dried bread, raw apples, lettuce, &c., cannot be too strongly recommended, and soft, sloppy diet too strongly condemned.

For children from two years of age onwards, three meals a day are ample; no food whatever should be taken between meals; and the habit of giving milk, tea, cake, biscuits, sweets, &c., between the regular meals should receive the strongest condemnation. The principle of allowing the stomach time to complete its work on each meal before more food is taken should be the rule for all children, and is of special importance in the case of any child whose health is below par and whose digestive power is consequently impaired. The old

maxim "little and often" is a mistake, whether children are well or ill.

#### Causes of Dental Disease

The modern progressive and alarming increase of dental disease is mainly due to dietetic causes incidental to the great increase of artificial methods of treating and manufacturing foods. An unsuitable diet may act prejudicially in two specially important ways namely:

(a.) By interfering with the nutrition of the teeth in early life, thus diminishing their inherent resistance to decay:

(b.) By favouring the lodgement of fermentable carbohydrate food about the teeth, and impairing the natural cleansing-action of the saliva.

The chief errors contributing to dental decay are—

(1.) Wrong feeding; lack of fresh air, outing, and exercise; and other hygienic errors on the part of the expectant and nursing mother.

(2.) Neglect of natural feeding in infancy.

- (3.) Excessive consumption of artificial sugars.
- (4.) The almost exclusive use of cereal and farinaceous foodstuffs in unduly refined forms—especially foodstuffs consisting of artificial combinations of sugars and starches.
- (5.) The unnatural frequency and irregular times at which these foods are taken.
- (6.) The softness of modern foods.
- (7.) Neglect of the use of raw fruit and vegetables.

(8.) Tea-drinking.

#### The Tooth-brush

The systematic regular daily use of the tooth-brush must be advocated, though no brushing would be needful if the food habits of mother and child were in accord with natural requirements. Without attention to diet mere brushing of the teeth does not and cannot effectively stem dental decay.

#### DENTIFRICES

Every opportunity should be taken to remove the impression in the minds of the general public that the so-called antiseptic preparations can render the mouth aseptic for more than a few minutes. Not only is this impossible, but these preparations for the most part do little if any good and are injurious to the gums. Abrasive tooth-powders also should be avoided.

As a mouth-wash, plain water, or a solution of salt—half a teaspoonful to a tumbler or cup of water—is recommended to be used, more particularly last thing at night, thoroughly rinsing the mouth after brushing.

#### Tonics

The indiscriminate use of so-called chemical foods and tonics should be deprecated. There is no doubt in the minds of dental practitioners as to the evil effects of these on the teeth and gums. These medicines should only be used on the order of a medical practitioner, and then only for the limited time prescribed, and with due precautions. The probability of destroying the teeth and the risk of interfering with digestion and nutrition are dangers that the public should be educated to understand.

Dental disease being admittedly the most serious and urgent of all public-health problems, its prevention demands the earnest attention of all those specially responsible for directing and influencing public opinion in such matters. In view of the very grave damage done to the rising generation by faulty food liabits, all medical and dental officers, nurses, and school-teachers are expected to do their utmost, both by precept and personal example, to inculcate better and more rational habits in regard to food and feeding.

#### The Eskimo Dentist

By .1. de H. Smith, Edmonton, .1lta.

From Fort McMurray to the Arctic, golden smiles—in the literal sense—are now to be met with on every hand. Black-smith's tongs, nails and files have been gladly discarded by the residents of the fur posts; an era reminiscent of the Spanish Inquisition has faded into the misty past, toothaches have been banished from the Lone Land, and the north country has entered on a new and painless era.

Dr. W. P. Miller, the man responsible for this happy condition of affairs, has returned to Edmonton after six months spent in the Arctic during which time he travelled between seven and eight thousand miles via steamer, whaler, river boat, schooner, launch, scow and canoe. He went north down the Athabasca and Mackenzie rivers, returning via Alaska, the Siberian coast, the Behring straits and Vancouver, and as a result he possesses sufficient incidents to fill a large sized volume.

Dr. Miller was the first dentist that the Arctic has ever known. Prior to his advent it was the custom of toothache sufferers to obtain the assistance of husky neighbors who held the victim down, while the local strong man gouged out the offending molar with the business end of a file or somewhat similar instrument. The three doctors scattered along the two thousand miles of north-flowing rivers ,could not possibly attend to the patients, transportation being a distinctly minus schedule in the far north, with steamers few and far between, and though the Sisters of Charity and the missionaries performed wonders, for years the cry of the northmen has been for a real dentist to "come over into Macedonia and help us."

In response to the urge of their post managers, the Hudson's Bay Company finally arranged with Dr. Millar, and, on May 29th of this year, he left for the north, visiting all the posts strung along the rivers.

At every steamer landing he was greeted by dental sufferers, who were willing to fight for a place in his operating chair. Every post brought forth its quota of men anxious for attention, all but the Indians, who regarded the whirring drill as "bad medicine" and who averred that if their fathers had been able to chew caribou and moose with the molars provided by the Great Manitou they certainly could do the same. Stripped of all camouflage, however, it simply meant that the native sons were suffering from funk, pure and simple, and, like their white compatriots in other climes, were extremely brave up to the time of arrival at the dentist's door—except that in this instance the "office" was not provided with an appendage of this description.

Reports to the effect that a pleasing anesthetic in the shape of fire-water was administered to patients at one period awakened interest in the breasts of the redmen, but, when this statement was found to be fictitious, the Indian took no further interest in dental surgery and resumed his wonted

occupation of contemplating the scenery.

Vastly different were the Eskimos, however. Entirely nerveless, desiring novelty above all else, and possessed of unlimited wealth, dentistry made an instant appeal to the residents of the Arctic. First contact was made with the Eskimos at Arctic Red River post, where "Old Adam" gladly took his place in the operating chair and announced that "he was ready to try anything once," and that he and his family might all be regarded as patients. The resultant procedure was entirely pleasing to "Old Adam," and, had the doctor desired it, the elderly patient would have carved a stirring message on bone and spread the glad tidings throughout the Arctic, of the delightful new sport imported from the white man's country.

Though the first professional dentist to visit the top of the map, Dr. Millar had an amateur rival in the person of one Pougiak. The latter, while hunting polar bears, had the misfortune to bang his face on an ice pinnacle with the result that one of his front teeth was jarred loose and swallowed. Thereupon Pougiak produced a fragment of bone, whittled it into the form of a tooth and forced it into place between the remaining sound members, where it remained for some years. At this writing, however, there is a full-blooded Eskimo practising (the word is used advisedly) dental surgery in the Great Unknown. This gentleman rejoices in the name of S.T.R. Mike-the initials having reference to the whaling "strs" on which Mike was employed. Upon having his defective molars filled by Dr. Millar, the patient asked casually: "You sell 'em?" indicating the various dental machines. Recognizing the query as being a jocular one, the doctor replied in the affirmative, whereupon Mike pulled out a roll of Canadian currency sufficient to choke an ox, and immediately became the possessor of the apparatus. Therefore he is at this time driving his team of huskies into the unknown eastern Arctic within his sleigh an up-to-the minute operating chair, motor, drill, sundry instruments, as well as all the other etcetras known to the profession. It is Mike's desire to "astonish the natives" and this laudable intention he will no doubt fulfil.

As a matter of fact, the Eskimos, like the Japanese, are extremely imitative and clever and it is quite possible that the first Eskimo dentist will be as successful as his brethren in understanding the compass, weatherglass and internal combustion engines which they use in their schooners.

At various points on the Arctic coast, due to lack of transportation facilities, the doctor was forced to leave for other destinations before the various operations he was engaged upon were finished. This did not nonplus his Eskimo patients, however; they simply broke camp and followed his transient "office" to the next location.

At Shingle Point, on the Arctic coast, between 60 and 65 Eskimo families were found, the majority of whom decided to have their teeth fixed irrespective of whether they required this attention or not. Due to their skill in capturing the Arctic fox and the high prices which have prevailed, the Eskimos are all extremely wealthy, and they are at a loss to know how to expend their fortunes, as, in their natural state their requirements are of the simplest. Dr. Millar states that the Arctic residents' teeth are very soft, in addition to which one of the national pastimes is the chewing of seal and caribou skins, which is part of the tanning process. This generally devolves on the woman, who spend the winter season engaged in this pleasant pastime, and as a consequence their teeth are worn down to a series of stubs. The Arctic may not be one of the choicest residential sites in the world, but if some enterprising dentist decided to make it his home for a few years, it is a certainty that he would have a list of patients exceeding the wildest hopes of the college graduate. In addition these remarkable clients would all pay in advance if desired, and would not worry particularly regarding the amount of fees. El Dorado!

Dr. Millar, during his voyaging, travelled in many strange types of craft, but awards the palm to the "Mud Scow." This peculiar specimen of marine phenomena consisted of a box-like hull constructed out of inch lumber; on this was mounted a cabin built out of beaver board. The

vessel possessed a gasoline engine for propulsion purposes, and, on this "Mauretania of the Arctic" the doctor and some other hardy individuals embarked to navigate the ice-filled ocean. The boat headed for Herschel Island, and, once free of the land, turned, twisted, tacked and circumnavigated in the endeavor to find a channel through the float ice which this year has never left the Frozen Sea. Finally after many adventures the coffin-like craft arrived at Herschel Island to find that the Hudson's Bay Company steamer "Lady Kindersley" had fought her way in through the ice, had discharged her cargo and was about to sail.

Due to the condition of the sea there was a considerable doubt as to whether the ship could battle her way out to the Pacific, the alternative being a stay at the most northerly Canadian settlement for another year. Though little past midsummer, snow was on the ground and what leads of water were open froze again immediately, the thermometer never reaching above freezing point. Finally the captain decided to take fate in his hands and put out from Herschel, and by picking the "soft" places in the ice pack, after much discouraging work, finally won through to fairly open water in the neighborhood of Point Barrow, the most northerly point on the American Continent. From here Dr. Millar's ship proceeded along the Alaska and Siberian coasts, taking on water, ballast and reindeer meat at the port of Teller, and then threading her way through the Aleutian Islands, the "Lady Kindersley" pointed her nose south and finally arrived safe home once more to Vancouver, from where the doctor returned to Edmonton by the more comfortable and less risky railway.



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### The Questionnaire

There are many dentists who refuse to be interrogated by the Questionnaire. Some have said it is the lazy man's way of finding out what can be seen in the general dental literature. Others give the answers to the questions careful consideration and reply. The great difficulty is to frame questions which will bring corresponding answers from a number of persons. Sometimes it is impossible to give a direct answer to a question without writing a section for a text book. Questions often remind one of the attorney who demands that his question be answered by "yes" or "no" when either would convey a wrong impression. Notwithstanding what may be said against the Questionnaire, it is a splendid method of getting the general opinion of the profession on a given subject. The text books are too long in preparation to meet the demand and, anyway, they are often the opinion of only one author. The questionnaire sent out by Dr. Elmer H. Best on pulp and root canal treatment and the answers appear in the last issue of the Journal of Dental Research. This is a real contribution to dental literature and is well worth the effort of the author.

### A Code of Ethics for Modern Times

There are some serious problems arising in the dental profession in Ontario. The profession has not had a code of ethics for years and as a matter of fact there has not been a frank discussion of what is good form in dental practice for many a long day. It might be well if a general meeting were called to discuss such problems. It would give those who think conditions have changed in recent years a chance to express their views and have them incorporated in a new code. If such a meeting were called at the time of the Ontario Meeting, it would attract more than at any other time.

### Errors in Diagnosis Based on X-Ray Pictures

Even among the most experienced diagnostitians there are errors in making a diagnosis from x-ray pictures alone. But when the inexperienced operators of X-ray machines, who have not seen three post-mortems in their lives, make positive findings which they expect to be used as a basis of treatment, it is time to call a halt. The accompanying radiographic picture and its interpretation are evidence of what



is going on constantly. The physician sends his patient to a radiologist and receives a reading which he himself is unable to proof up and then sends the patient to have the teeth removed:

"Both lower bicuspids are apparently vital teeth without evidence of filling in the crown or root canal fillings but both of these show very minute areas about the apices which are exceedingly suggestive and I believe are evidences of beginning infection."

Clinically these teeth and gums look as clear and as free as one would expect to find them from looking at the pictures.

### The Late Dr. Geo. M. Gould

To the Editor of the Dominion Dental Journal:-

I wonder how many of your readers are aware of the fact that within the last few months there has passed to his reward a man who, whether they are conscious of it or not, has exerted a direct influence on the life of possibly every graduate of the Royal College of Dental Surgeons.

I refer to the late Dr. Geo. M. Gould, the brilliant author of Gould's Medical Dictionary—a book which has had a greater sale than any medical text-book ever issued—and one which was used in every English-speaking medical and dental college in the world.

Dr. Gould is considered by many to have been the greatest medical man that America has ever produced. He was, first of all, an oculist and undoubtedly the greatest refractionist in the world. He was already a sayant and scholar, when, at the age of 37 years, he entered as a medical student at Jefferson Medical College. Before graduation he published the first of his many editions of Gould's Medical Dictionary and was immediately recognized as a genius. In Great Britain, the "British Medical Journal" hailed him as "The Johnson of Medical Lexicography." After graduation, he founded "American Medicine" and was for years editor of the "Philadelphia Medical News." He has been called the greatest medical editor in the English-speaking world and as a proof of that, we may say that he refused the editorship of the "British Medical Journal" and the "Journal of the American Medical Association." His published works include over five hundred books and magazine articles and cover a wide field, including art, philosophy, biography and science.

But it is not of Dr. Gould, the lexicographer, not of Dr. Gould, the oculist, not of Dr. Gould, the editor, not of Dr. Gould, the savant, of whom I want to speak. But I would like to call the attention of my fellow practitioners to Dr. Gould, the kind, courteous, sympathetic, humane, loving physician.

In this age of materialism, there is a tendency to regard so many of the so-called successful members of the medical and dental professions, as hard hearted materialists. I am sorry to admit that this is only too true in certain quarters, and we hear too much of the money side of our work. The late Dr. Gould knew this only too well and he detested the profiteer, the charlatan and the fashionable doctor. The writer, after many years of great distress and ill-health caused by astigmatism, with pain so great that for years he was unable to read or pursue a college course, was told by more than one of our leading oculists that there was nothing wrong with his eyes. After these years and while still in agony, he struggled through a course of dentistry at the R.C.D.S. and started practice.

Pain followed pain and a weekly bilious attack was the rule. He again consulted an eminent authority only to be told again his eyes were perfect. Some twelve years ago he was asked to go to Dr. Gould. Hoping against hope, he sought out the great man who had recently removed from Philadelphia where he had so long practised and was living at Ithaca, N.Y. where he had a beautiful home and office. What was my surprise on being ushered into the presence of one of the handsomest men I ever met, to have him put his arm around my neck and tell me in tones of sympathy that he was going to help me. With infinite pains he made his examination, discovered a very small degree of astigmatism, prescribed glasses, saw that the prescription was properly filled and for the first time for years I had relief.

During my stay in Ithaca, he introduced me to some rare characters. I was taken out to dinner, taken to the club, taken to church and made happy by some of his friends, for he was too busy himself to go with me. On leaving, only with pressure did he accept a small fee. He asked me to write to him, a friendship grew up which lasted till his passing. He wrote me many long letters with his own hand, told me of his work, of his sorrows and joys, and coaxed and urged me to go and be his guest for weeks.

The point I wish to make is this: Here was a man who had patients from all over America, from England and the continent, scores of patients among millionaires and celebrities, among others Sir Gilbert Parker and Sir Wm. Van Horne, and yet he was not too busy or too mighty to make an intimate friend of a poor dental surgeon who came to him in distress.

Should he not be an example to every practitioner of the healing art? He sought not wealth, nor fame, nor position. He desired to serve, and his kind acts to the poor and afflicted would fill a volume if recorded.

In conclusion, let me give two Biblical quotations, both used by great physicians. In a beautiful article by Dr.

Gould on the life and work of the great artist, Millet, (the author of the "Angelus"), he attributes his great success to his humble reverent spirit and he quotes "God resisteth the proud but giveth grace to the humble."

In an address delivered at Yale University by the late Sir Wm. Osler, in warning the students to beware in after-life of the materialism that would surely tempt them, he quotes from the Psalms: "He gave them their heart's desires, but sent leanness withal into their souls."

As Canadian dental surgeons may we seek to emulate such a life as that lived by one of God's great noblemen.

Strathroy, Ont. (Sgd.) M. P. Corrigan, D.D.S.

### **Editorial Notes**

The Mayor of Quebec City has recently apointed Dr. Orme Lantier, 50 Couillard St., as director of dental service and clinic. The dental clinic now has four beautiful rooms on the fourth floor of the City Hall, comprising two operating rooms, large waiting room and large office for the director. Each room is well furnished and the operating rooms are complete to the very last detail.

Dr. W. J. Turner, R.C.D.S., 1922, has opened an office in Edmonton.

If those dentists who wrote to Dr. McLean, 36 Bloor St., East, Toronto, for a copy of the verbatim report of the proceedings of the discipline committee and have not received it, will write again, a copy will be forwarded.

The Christmas holidays for the Dental School at Toronto will begin December 21st, and end January 3rd, 1922.

SITUATION WANTED—Dentist, graduate R.C.D.S. 1900, wants situation for five months beginning Dec. 1st. Can take full charge of office or would work as assistant. Address Dominion Dental Journal, Box 3.

FOR SALE—Complete Dental Equipment in old established office. Office rent very reasonable. Apply to C. E. Klotz, 84 St. Paul Street, St. Catharines, Ont.

FOR SALE—Dental equipment and practice, in Toronto. Long established. Apply, Box 4, Dominion Dental Journal, 73 Richmond St., West, Toronto.



Harold Theodore Gagnier, President of Consolidated Press, Limited, publishers of Dominion Dental Journal, Saturday Night and numerous other journals, who died last month at the early age of 49 years.

## HARDENS SOFT TEETH



Formula of W. M. Ruthrauff, A.B., A.M., Inventor of the first Acid Tooth Paste

Hundreds of experiments prove that when the saliva is rich in calcium phosphate, tooth decay is rare. On the other hand, when the saliva is deficient in calcium phosphate, tooth decay is extremely common.

It required seven years of scientific research to discover how the saliva possesses not only a hardening or calcifying action on the enamel but also a reparative action in counteracting the destructive forces constantly active in the mouth and to develop a Tooth Paste having marvelous calcifying properties to supply the deficiency in the saliva.

## TEETH LOSE SENSITIVENESS UNDER THIS TREATMENT

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